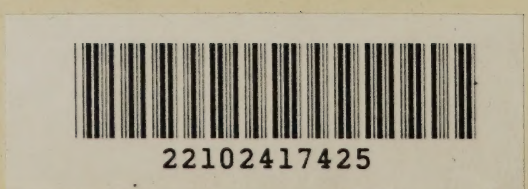
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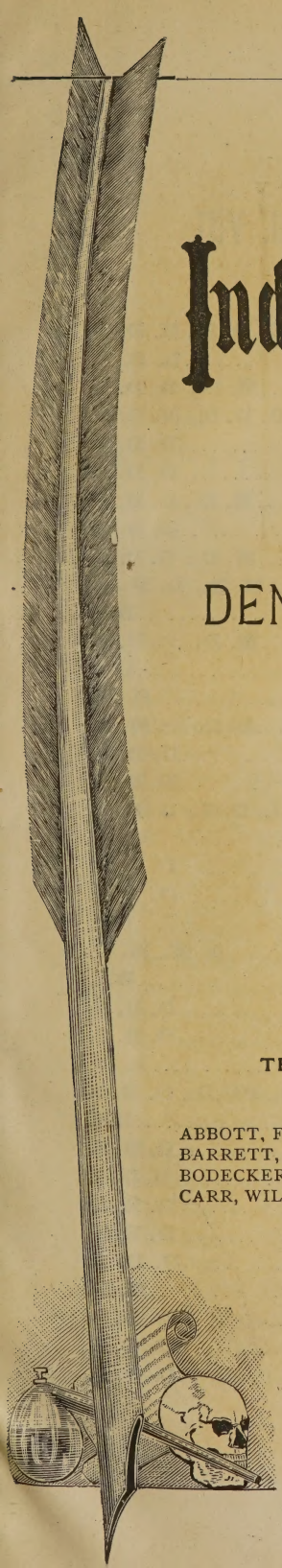

THE

Independent Practitioner:

A MONTHLY JOURNAL

DEVOVED TO

DENTAL AND ORAL SCIENCE.

W. C. BARRETT, M. D., D. D. S.,

EDITOR.

Dental Students Library,

No. 35 West 46th St., New York,

AND No. 208 FRANKLIN ST., BUFFALO, N. Y.,

THE NEW YORK DENTAL JOURNAL ASSOCIATION.

PUBLISHERS.

ABBOTT, FRANK .....NEW YORK	DUDLEY, A. M.....SALEM, MASSACHUSETTS
BARRETT, W. C..... ..... BUFFALO	FRANCIS, C. E ....NEW YORK
BODECKER, C. F. W.....NEW YORK	HILL, O. E. .....BROOKLYN
CARR, WILLIAM..... .....NEW YORK	MILLER, W. D.....BERLIN, GERMANY

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VOLUME VIII, 1887.

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INDEX.

TO THE

INDEPENDENT PRACTITIONER.

VOL. VIII.

ORIGINAL COMMUNICATIONS.

Absorption of Dentine; Its Relation to the Process of Reimplantation and to Decay of the Teeth. Prof. Miller..... 16
Alveolar Abscess. Geo. A. Maxfield..... 349
A Bold Declaration Reviewed. C. A. Marvin..... 57
Causes and Treatment of Dental Caries. Geo. P. Rishel..... 631
Clinic of Prof. Garretson. Robert S. Ivy.....298, 411
Concerning Some Uses of Oxy-Chloride of Zinc. N. S. Jenkins. 123
Contributions to the History of Development of the Teeth. Carl Heitzmann and C. F. W. Bödecker.....225, 281, 337, 397, 453, 509, 565, 621
Copper Amalgam. Geo. H. Weagant..... 625
Courtesy Among Dentists at Professional Meetings. J. N. Farrar..... 71
Dentistry and Medicine. Herbert M. King..... 90
Dentistry Not a Specialty in Medicine. N. W. Kingsley..... 1
Discriminate Use of Gold. S. B. Palmer..... 175
Dividing Line, The. Frank W. Low..... 406
Dr. Younger and Implantation of Teeth. C. A. Marvin..... 25
Driving Wheels and Strokes in a Dental Engine. W. H. Rollins..... 248
Elements of Success, The. W. C. Barrett..... 235
General Health as Expressed by the Work of the Kidneys, and its Relation to the Teeth. Chas. Mayr..... 578
Hard Rubber and Corundum Disks and Wheels. Geo. A. Maxfield..... 520
Herbst Fillings. J. P. Geran..... 19
Herbst Method of Filling Teeth, The. C. F. W. Bödecker..... 78
Implantation of Teeth. G. L. Curtiss..... 21
Influence of Culture on Professional Skill, The. Thos. Fillebrown..... 113
Is This True? C. R. E. Koch..... 126

Metallic Enamel Sections. A New System for Filling Teeth. Dr. C. H. Land 87
Metallic Enamel Coatings and Fillings. C. H. Land..... 413
My Student. J. D. Moody..... 518
Metal Work. L. P. Haskell..... 133
Oral Hygiene and Care of the Teeth. C. E. H. Phillips..... 187
Ovarian Cyst, An. W. C. Barrett..... 294
Overcoming Leverage in Superior Dentures. L. C. Bryan..... 192
Pain Obtunder, A. F. H. Brimmer..... 301
Post-Graduate Study. C. N. Johnson..... 189
Prehistoric Decay of the Teeth. C. T. Terry..... 27
Recent Theories of the Formation of Pus, Considered with Reference to Dental Operations. G. V. Black..... 462
Robert Koch—His Work and Methods. Geo. W. Lewis, Jr..... 290
Some Observations from the Life of the Late Dr. John M. Riggs, of Hartford, Conn. Geo. A. Mills..... 129
Stenocarpin. Wm. H. Mitchell..... 523
Surgical and Therapeutic Treatment of Caries and Necrosis of the Alveolar Process in Man, The. A. W Harlan 169
Teeth with Exposed Pulps. B. Merrill Hopkinson..... 184
To Be or Not To Be. J. G. Palmer..... 256
Tooth-Pulp in its Relations to Dental Operations, The. Wm. H. Trueman. 569
Two Dentists who do "Not Get On." W. Geo. Beers..... 635
Visit to Foreign Dental Schools and Other Observations, A. A. W. Harlan 402
"Wanted—A First-Class Mechanical Dentist. No Student or Operator Need Apply." Frank B. Darby 181

REPORTS OF SOCIETY MEETINGS.

American Dental Association.....480, 525, 582, 638
American Dental Society of Europe..... 654
Central Dental Association of Northern New Jersey.....194, 249, 318, 597
Clinic of the Chicago Dental Club 312
Connecticut Valley Dental Society.....492, 536, 596, 650
Dental Society of the State of New York, The 310
First District Dental Society of New York.....35, 93, 135
Illinois State Dental Society.....303, 363, 415
Minnesota State Dental Society..... 429
National Association of Dental Examiners..... 487
New Jersey State Dental Society..... 547
New York Odontological Society.....30, 96, 260, 315, 599, 659
Ninth International Medical Congress, Washington, D. C.....528, 588, 641
Southern Dental Association.....541, 592, 647

EDITORIAL.

Action of the American Medical Association, The Late 350
A. D. A. Meeting for 1887, The 320, 377, 500
American Dental Association 211, 265
American System of Dentistry 162
Anniversary Meeting 45
Association, The 435
At Washington 556

Bleaching Teeth 608
Bonwill Dental Engine and Mallet, The 330
Brethren Across the Line, Our 553
Broken Broaches in Pulp Canals 103

Can There be Suppuration without the Presence of Micro-Organisms? 104
Concerning Contests 496
Complimentary 162
Congratulatory 555
Congress, The 550
Crowded Out 162

Dental Societies in America 106
Dentifrices 206

Editorially 664
Educational Matters 663

First District Dental Society Meeting and Some of its Results, The 99

Immediate Root-Filling 605
Implantation 43, 385
In Extenuation 501
It Can Wait 501

"Let Us Have Peace" 270

Medical Congress, The 155, 498
Medical Recognition 430
Medical Recognition Again 602
Medicine and Dentistry 41

New Remedies 433
New York Society Reports 158

Personal 45
Practical Scheme, A 328
Professional Courtesy 160
Prospective 210
Pus Formation 501

Receipts 45
Remittances 211
Rest for Dentists 325

Society Objects 556
Subscribers, To 105

That Two Hundred Dollar Prize 499
To Junior Dentists 501
Tooth-Crown Patents, The 208
Tooth Powders 434

Unusual Opportunity, An 606

Vale! 1887 662

Waite Testimonial Fund, The 267
Washington Meeting, The 384
Western Dental Journal, The 105

BIBLIOGRAPHICAL.

..... 45, 212, 386, 435, 557, 560, 609

CURRENT NEWS AND OPINION.

..... 49, 107, 163, 216, 271, 331, 386, 442, 502, 560, 616, 665

Vol. VIII. JANUARY, 1887. No. 1.

THE

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Table of Contents—January.

ORIGINAL COMMUNICATIONS:

Dentistry Not a Specialty in Medicine. N. W. Kingsley 1
On the Absorption of Dentine; Its Relation to the Process of Reimplantation and to Decay of the Teeth. Prof. Miller 16
Herbst Fillings. J. P. Geran 19
Implantation of Teeth. G. L. Curtiss 21
Dr. Younger and Implantation of Teeth. C. A. Marvin 25
Prehistoric Decay of the Teeth. C. T. Terry 27

REPORTS OF SOCIETY MEETINGS:

New York Odontological Society 30
First District Dental Society of New York 35

EDITORIAL:

Medicine and Dentistry 41
Implantation 43
Personal 45
Anniversary Meeting 45
Receipts 45
Bibliographical 45

CURRENT NEWS AND OPINION 49

Index to Advertisements.

Horsford's Acid Phosphate ... Cover Page 2
C. H. Land ... " 2
Dr. G. C. Daboll ... " 2
Underwood Spring Water ... " 3
Parke, Davis & Co ... " 4
Listerine ... Adv. Page 1
Caulk's Dental Annual ... " 2
Seabury & Johnson ... " 3
Claudius Ash & Sons ... " 4 & 5
Acme Gold Foil ... " 6
American Dental Manuf. Co ... " 7
Caulk's Filling Materials ... " 8 & 9
Cogswell's Disk Carrier & Guard ... " 10
Edward Rowan & Co ... " 11
C. A. Timme & Co ... " 12 & 13
Hardman's Amalgams ... " 14
Dibble's White Amalgam ... " 14
E. Kearsing ... " 15
Lawrence's Amalgam ... " 15
Wilmington Dental Mf'g Co ... " 16
Gasoline Furnace ... " 17
New York Dental Manuf'g Co ... " 18 & 19
S. S. White Dental Manuf'g Co. ... " 20–25
I. W. Lyon ... Page 26 & 27
Akron Dental Rubber ... " 28
Parson's Eureka Alloy ... " 29
Cherry Malt Phosphites ... " 29
J. H. Smith's Cements ... " 30
To Inventors ... " 30
Ph. Schmidt ... " 31
A. J. Nickolds ... " 31
Vulcanizable Gold ... " 32
Welch Dental Co ... " 33
Oleo-Chyle ... " 34
Michigan Central R'y ... " 35
Daly Gold Lining Dental Co ... " 36
Murdock's Liquid Food Co ... " 37
Reed & Carnrick ... " 38
The Hartley Chair Co ... " 39
Westminster Hotel ... " 40
Philadelphia Dental College ... " 41
New York College of Dentistry ... " 42
Chicago College of Dent. Surg'y ... " 43
Remington Stand'd Type-writer ... " 44
Florence Manufacturing Co ... " 44

The Independent Practitioner—Vol. VIII.

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THE

Independent Practitioner.

VOL. VIII. JANUARY, 1887. No. 1.

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DENTISTRY NOT A SPECIALTY IN MEDICINE.

BY NORMAN W. KINGSLEY, D. D. S.

ANNUAL ADDRESS BEFORE THE NEW ENGLAND DENTAL SOCIETY.

When I received the invitation from your committee to be present on this occasion, I said, involuntarily, from a force of habit—no. But the compliment paid me in the invitation, together with the flattering reception accorded me in Boston on a former occasion, made me hesitate in sending a negative reply.

When I have something to say a little out of the ordinary practical and scientific talk of dental societies, I like to come to Boston with it. The old fancy that wisdom was born in the East and spreads from that point of the compass, induces me to seek this locality and take advantage of the myth. As my professional audience, other than that now before me, lies to the west of us, my words may possibly gain a factitious importance by being delivered in Boston. I realize in advance that some things I am about to say will not be accepted, and are liable to be severely criticized.

I have for some years been drifting in a conflict of opinion upon a subject of universal interest to us, until a period of positive conviction has arrived, and in my present discourse I shall present my reasons for believing that dentistry is not a specialty of medicine. Such an assertion requires some boldness, in view of the prevalence of a contrary opinion, associated as it has been with the idea that, in some indefinite sort of way, to be regarded as specialists in medicine gives us character and dignity, and invests us with the right to be called scientists. This desire to be considered medical specialists has its foundation in a notion that dentistry, pure and simple, is ignoble, to practice it degrading, and that to stand well in society we must resolve that we are not dentists, but medical doctors practicing a specialty. It has also been stimulated by that spirit of contrariness which inspires children to cry for that which is denied them, and as the medical profession, as a whole, have denied that dentistry is a specialty of medicine and is only a mechanical trade, dentists have got very much in the habit of denying that dentistry is a mechanical trade, and on all occasions asserting and reasserting that they belong to the great medical fraternity. That they do sometimes prescribe medical remedies, apply leeches and cut gumboils is true, but there is not an old housewife in the country who is not more of a medical doctor and better capable of treating the diseases of the family than the majority of dentists, even if they have the medical degree.

Asserting that we are medical practitioners does not make us so, any more than the three Tailors of Tooley Street became the "People of England" when they met in solemn conclave and passed their famous resolution to that effect. One is reminded of the old fable of the ass with a lion's skin. The skin was the skin of a lion, but the bray was that of an ass.

All this betrays upon the face of it a consciousness of demerit—a consciousness that they are claiming what they are not entitled to, on the Jew principle of asking more for a thing than it is worth and accepting what can be obtained.

The assertion of the medical fraternity that dentistry is only a mechanical trade because dentists make artificial teeth, is no wider of the mark than the claim of some dentists that, because they can stop a local ache or wrestle with pyorrhœa alveolaris, they are thus constituted specialists in medicine.

The true status of dentistry is distinctly separated from either of these incongruous claims. Now, that there may be no ambiguity of terms, let me say, before going further, that by dentistry I mean to include every branch and department known under that name, and a dentist in the full sense of the term, in the present stage of the art, is one who understands and can practice each and every specialty of it. The American Dental Association, as is well known, is divided up into seven or eight sections. I was recently called upon to declare to which section I wished to attach myself. My reply was: "To no *section;* I am not the eighth part of a dentist, to which seven other parts must be added to make a whole."

In passing, I wish to remark that that sectional plan, copied after the American Medical Association, is not suited to our condition. Whatever may be the result in the Medical Association, I am confident that all the members of our National Association would return from its meetings with more benefit if the sections were abolished.

I take pride in being a dentist in the full sense of the term. No man ever applied to me for a service that came within the range of dentistry, to whom I was obliged to say, "that is not my specialty; I shall have to send you to some one else."

A dentist may be an oral surgeon, but an oral surgeon is not a dentist. A dentist may be an excellent anatomist, physiologist, chemist, microscopist, artist or mechanic, but neither one of these practiced to perfection makes him a dentist.

I desire to make the distinction very marked. Oral surgery, which is an almost infinitesimal part of dentistry (as dentistry is practiced daily the world over), is unquestionably a specialty or department of general medicine. But dentists who affect oral surgery, or who occasionally perform some trifling operation, have not much more claim to be called surgeons than has the old farmer who opens a boil for one of his laborers to let out the core. Oral surgery, as practiced by dentists, is only a very small but not unimportant specialty of dentistry; it occupies the debatable ground between dental and general surgery, but as an essential department of practical dentistry, its importance has been magnified by those practitioners who are more skilled in surgery than they are in dentistry.

I am, therefore, prepared to affirm that dentistry is not a specialty of any other science or art, but is a profession in itself, as separate

and distinct from all others as any other calling or vocation is distinct from every other.

Dentists are very much in the habit of speaking of their occupation in one and the same breath, as a "profession" and as a "specialty," but I doubt very much if many of them could give any good reason why it should be called a profession. They use the term because it sounds well, is a little higher-toned, and carries a degree of importance with it.

But dentistry is a profession. It is a profession because it is a vocation of beneficence. This is so patent that I need not attempt to prove it, or enlarge upon it. Millions are on the earth to-day who call us blessed because of the comfort we have given them and the benefit they have derived from us.

Dentistry is a profession by universal acknowledgment. All things in this world, physical, political, social or moral, by the law of equilibrium very soon find their own level. A man in his egotism, conceit and vanity, may assert this or that of himself, but whatever it may be, the great common sense of the "plain people" (as Mr. Lincoln fondly called them) puts him in his true place.

Dentistry has been an organized science for more than a generation, and has been called a "Profession" by universal consent, by the cultured and uncultured, as well as by its own practitioners. Even the highest authorities in medical literature refer to dentistry, not as the "Dental Specialty of Medicine," but as a "Profession." That most distinguished of medical authors, the late Prof. Frank H. Hamilton, in a letter to the Odontological Society of New York, written last February, said :

"To Americans, by almost universal consent, is given the chief credit of having brought dentistry from a simple mechanical art to the rank of a science, and of having established for itself a just claim to the title of a 'Learned Profession.'"

Your own beloved Holmes, distinguished alike as an author and a savant—one who does not use the English language recklessly or without meaning—sent to the same society last winter this toast :

"The Dental Profession and this Association as its worthy representative." It has established and prolonged the reign of beauty; it has added to the charms of social intercourse and lent perfection to the accents of eloquence; it has taken from old age its most unwelcome feature and lengthened enjoyable human life far beyond the limit of the years when the toothless and purblind patriarch might well exclaim, 'I have no pleasure in them.'"

This designation of it as a "profession" is not an assumption like that of the barber, the dancing master, or the itinerant phrenologist; it is entitled to this distinction because the mastery of it as a science or an art involves a considerable knowledge of many other sciences. Its resources are not only nearly all the sciences, but, in an equal degree, nearly all the arts. Hardly an art, from plumbing to sculpture, but has its prototype in some branch of dentistry, and yet it is not a department or specialty of any one of them.

Suppose that in some kind of manufacture in which I might be engaged I was using strips of iron punched full of holes, and wanted a machine to make them. Such a machine could be made by a combination of well-known movements; for example, a treadle and driving wheel borrowed from a foot lathe; the movement of the punch from a sewing machine, and the feeding apparatus from a saw-mill. Such a machine would be distinctly a new machine, and patentable as such, although deriving all its principles from old sources. It would not be an improvement on a foot lathe, nor on a sewing machine, nor again on a saw-mill. The new combination and new application of old principles would make it an entirely new machine. It is so with dentistry.

While many of its processes are mainly of a mechanical nature, it is not a mechanical trade, inasmuch as a mechanical trade is governed by fixed rules and a routine of labor, in which each workman is a servile imitator of the pattern given him, and can become master of his trade without any knowledge beyond its details. His brain is not constantly called upon to apply established principles to entirely new conditions and surrounding circumstances. The distinction which I would make between a trade and a profession is that, while the latter may employ the identical methods of the former, the judgment and the inventive faculties of the practitioner must be in active exercise to apply those principles and those methods to constantly varying conditions.

The predominating feature and characteristic of dentistry, that which removes it farther than all else combined from medicine, is the mechanical character of its methods. We might as well try to blot out the inevitable laws of this universe as to ignore this great fact: dentistry, as a profession, has for its corner-stone and its entire foundation mechanics applied by a knowledge of the various sci-

ences. So much alike are the methods of the gold and silver jeweler to dentistry, that the acquirement of one would be a partial education for the other; yet making gold and silver jewelry is not a profession; it is a trade. Dentistry, while using the same mechanical processes, is obliged to add invention in their application to every case.

The methods of the painter and sculptor are the methods of the mechanic. But portrait, figure and landscape painting and sculpture are branches of fine art, and the vocation is a profession, not a trade. Figure painting and sculpture, particularly, require a better knowledge of general anatomy than dentistry does; but who ever heard a sculptor assert that he was for that reason "a specialist in medicine?" Michael Angelo's distinction and pre-eminence as the master artist of the world was due to his anatomical knowledge; and Sir Charles Bell made a science for artists in his "Anatomy and Physiology of Expression."

Blot mechanics from dentistry, and you might as well blot the sun from our terrestrial universe; chaos irredeemably follows.

A few dilettanti may confine themselves to operations on the natural teeth, and scout with indignation the idea that they are mechanics, but every step of the operation in filling a tooth is purely mechanical. It requires nice skill to be sure, but the skill is mechanical. That which dignifies it, bringing it above ordinary mechanics, is the fact that it is performed upon living organisms, and that which makes the operation professional is the knowledge of anatomy, pathology, etc., which discriminates in directing the mechanical treatment.

We must form our judgment of dentistry as it is to-day, in the year of grace 1886, and not as it may be in some utopian future, when the race shall have become so far advanced in the knowledge and application of hygienic principles, and all transmitted tendencies to deterioration have been stamped out, that teeth no longer need repair. Statistics of dentistry throughout the world to day would undoubtedly show that three-fourths of the combined aggregate income of the profession is derived from the exercise of mechanical skill, pure and simple, and that I believe without counting operative dentistry as a mechanical performance.

Dentistry is not a specialty of medicine, because its chief and

predominating characteristics are utterly unlike anything which is taught in medicine, requiring for their successful performance natural faculties and acquirements that are entirely distinct from the practice of medicine.

Dentistry may be said to be more nearly allied to medicine than to any other vocation, but an analysis may even question that. Laying aside, for the sake of the argument, what we consider as the unprofessional character of exhibitions of dental workmanship, and also the fact that such work is prosthetic in its intent, would we not be quite justified in making contributions to an industrial exhibition which was confined to works of art, including all objects of art in gold, silver and porcelain? Where are there any finer specimens of the art of gold working than some of the so-called bridge-work of recent times?

In passing, I cannot refrain from paying a tribute to such work shown by Dr. J. Rollo Knapp, of New Orleans, at the last meeting of the American Dental Association. They were brilliant mechanical achievements, and ought to make men, who have been trying to cut off mechanics from dentistry, hide their heads with shame. Men who can fill a tooth and nothing more, who could not execute such a piece of prosthetic dentistry to save their lives, assume an air of superiority and prate about relegating the mechanics of dentistry to the shop and to mere mechanics. Wipe out of dentistry everything belonging to mechanics, and you will have taken away all the brains, and cut the head off close to the tail.

If all the workers in metals, gold, silver, brass, iron or steel—if all the workers in wood, carvers, cabinetmakers and builders—if all the workers in pottery, moulders, porcelain-makers, and decorators, together with all the artists, painters and sculptors, were suddenly and simultaneously destroyed by some strange cataclysm or epidemic, those arts would not be lost; for in the ranks of the dentists could be found skilled experts in every one of them, and this comprehensive combination of natural faculties and acquirements is not to count against them, for if in the same grand catastrophe all the scientists of certain classes were carried off, the same sciences could be fully taught by dentists.

In the daily practice of dentistry can be found anatomists, physiologists, pathologists, histologists, biologists, microscopists, chemists, botanists, geologists and metallurgists.

Where in all the wide range of human employments is there another vocation, no matter whether you call it a profession or a trade, of which such a statement can be made?

That which makes dentistry as a science kindred to medicine as a science is the fact that it deals with a small but important part of the human economy. But the equally great fact that its methods are entirely distinct, requiring special education and special training, make it an independent science, and in no sense subordinate to the other.

The training of a dental student for his professional career is totally unlike that required by a medical student. Medicine involves hospitals and bedside practice, but dentistry involves, along with a study of the sciences, training the fingers, first, second, and all the time.

If dentistry be a specialty of medicine, where was the necessity for State laws regulating its practice, separate from those already in existence for the regulation of medicine? Does not the greater necessarily include the less? Does general surgery, which is a department of medicine, or oral surgery, which is a specialty, need special laws? Are not the laws of all the States, passed in the interest of medicine, quite sufficient to protect oral surgeons as well as oculists, gynecologists, and what not? Nevertheless, the State of New York, which is behind no other civilized community, did not include dentists among its exempts from jury duty, while it had exempted physicians, even from the organization of the government. I claim for myself the honor of obtaining from our Legislature a special law which exempted dentists equally with physicians from that annoying service.

Dentistry became an independent profession, not through any spirit of rebellion against the medical profession, but from sheer necessity. The fathers of dentistry in this country were graduates of medicine, and hoped to dignify their vocation by grafting it upon medicine, and have the theory and practice taught in medical schools. Their application was refused, and the history of dentistry as an independent, progressive and scientific organization began, and to-day the wondrous fact is the astonishment and admiration of the scientific world. We have more than a dozen independent institutions of learning which teach everything that a dentist needs to know. We have an independent literature which is not indebted to medicine so much as it is to other sciences.

Anatomy, physiology, histology, microscopy, chemistry, etc., are not *medical* studies. They are *sciences* upon which medical and other studies are based.

We have an independent journalism, larger than the total of medical journalism when our history began. We have independent national, state and local organizations that are vital, active and progressive, and what might once have been, viz., dentistry taught and practiced as a specialty of medicine, cannot now, in the very nature of things, ever be brought about. Even if it were possible at this day to blot out all the organizations—literary, social, educational and scientific—which now mark its independence, and reduce the profession to a mere section of medicine, no man with any pride in his calling or desire for its highest attainments would consent to it. The attempt to make it so now emasculates and degrades it. Furthermore, the tendency of the times is against it. Great social and political problems are being rapidly worked out. The growth of States and of capital is toward centralization. The growth of science is by segregation; the cellular theory is beautifully exemplified in its development.

As knowledge increases, the sciences divide and subdivide into specialties, and the specialty, through its independent and frequently original methods of investigation, speedily takes rank as a distinct science. In separate organizations the sciences will continue to advance; centralize them and make them specialties of one another, and the structure becomes top-heavy and crumbles.

Naturally, my audience will turn to the problem of the best method of preparing men for the practice of this independent profession. The day was in the memory of some of my hearers when the ideal philosopher had acquired and possessed the sum of human knowledge. It is not a century since a cyclopædia of modest dimensions would contain all that the human mind had gathered of all the sciences, in all the ages, which was worth knowing and preserving. The day is when dentistry—once an empirical trade, and now an independent profession—requires from those who would stand in the front a devotion to study and an active acquaintance with the current advance of allied sciences, greater than was demanded of the philosopher of a former age, who held within his own brain the entire sum of human knowledge.

We must not forget that it is these times and this generation which

demands our notice. We are not making plans for the millennium, nor for some ideal and Arcadian state of existence. The duties of to-day crowd upon us, and to meet fully the to-day is the very best way to be prepared for the morrow. The morrow grows out of and upon the to-day. To plan for to-morrow and leave to-day is lunacy; to meet fully the emergency of to-day, even giving no thought to the morrow, is the foundation of wisdom. Of course, I do not use the terms "to-day" and "to-morrow" in their literal sense, but make them figures of speech to stand for the present time and the great unknown future.

The fiat of nature that man shall *earn* his daily bread, has not been repealed. The struggle to-day for the necessities and comforts of life is as obligatory as ever, and with the rapid changes in our social life and increasing competition, we are forced more and more into narrower circles. The lads of this hour are men in the next, and within the hour they must become self-supporting. The law is inexorable.

The dental profession in this country is not recruited from the dilettanti of modern society—thank God—nor to any considerable extent from rich men's sons. The records of our colleges will not show ten per cent. of the students who are independent of their own earnings in obtaining their education, either already earned or their future mortgaged to return it. The grand achievements of the past and the hope and promise of a glorious future for our profession rest very largely upon this condition. Nothing makes success so valuable as the difficulties one overcomes in obtaining it.

Let me draw the picture from life. A young man with an academic education and limited means, with refined and artistic tastes, with natural abilities of that order that he is far more interested in the arts than in metaphysics or theology, is asking himself what occupation he shall adopt to obtain a living. As a boy, he could use his jack-knife with some skill, but if he attempted to swap jack-knives he was sure to get cheated. Commerce and trade are, therefore, not his sphere. His ambitions or his social surroundings prompt him to a more independent life than that of a mechanic with fixed hours and daily wages. Neither the practice of law nor the practice of medicine offers any field for the gratification of his tastes, but in an eminent degree the practice of dentistry does. And now comes *his* answer to the query which is agitating every dental society

in the land. He says: "I have determined to be a dentist, and I am going to adopt that course of training which, with my limited means, will earliest make me master of my chosen profession. I do not wish to be a physician; I have no taste for nursing or gynecology any more than I have for law or theology. The general culture which a knowledge of those sciences gives I would like, but they do not concern me immediately. I can gratify any desire that I may have in that way after I am master of this one profession, providing that I do not find in that one full employment for scientific investigation. I find there are schools for dental students, and that graduates from those schools have become the most honored and skillful practitioners of dentistry that ever lived or ever will live, and with that encouragement before me, it is all I want."

Is the young man's reasoning wrong? He makes a practical application of conditions which Harvard, Yale and Cornell recognize, and all the advanced thought of the age endorses, viz., that a man's education should have, first, special reference to his chosen line of life, and that those branches of science which do not have a direct bearing upon that calling may be eliminated without harm.

At this point I may as well meet squarely the issue which is being forced upon us by some short-sighted enthusiasts, viz., that graduation in medicine is essential as a basis of dental education, and in the great to-morrow all dentists must be, first, graduates of medicine, and after that dentists. I can only liken these gentlemen to the passenger who sits on the rear platform of a railway train with his back toward the engine, and views the scenery only after it is passed.

The Vice-President of the Southern Dental Association, in his recent essay on dental education, would banish the dental degree, blot out dental colleges, and compel all students to obtain their dental education in medical schools, receiving the degree of Doctor of Medicine before allowed to practice. He has the hardihood to predict that such a condition will come about "within the next decade." But he is no wilder in his lunacy than the present President of the American Dental Association, who says: "Dentistry is not a profession, nor can it be except as it is medical, * * * and so sure as the sun shines the time will come when all dentists will be required to be medically educated." The trouble with both these eminent gentlemen is that they are sitting on the rear plat-

form of the train, and have put the wrong end of the prophetical telescope to their eyes, and cannot discern that the inevitable progress of events is exactly in the opposite direction. Besides, their vision is blinded with a vague idea that M. D. tacked on to a dentist's name makes him, in the eyes of the community, and in fact, a better dentist; but no more foolish fallacy ever took possession of a misguided brain. The status of dentistry to-day shows it. The most skillful practitioners in the world, acknowledged so both by the community who seek their services and by their professional *confrères*, receive the reward of their merits utterly irrespective of graduation in medicine or the possession of that degree through favor.

But there are other gentlemen equally capable of casting the dental horoscope, who express themselves differently.

Before the American Dental Association in August, 1884, Dr. C. W. Spalding, whose eminence as an author, teacher and practitioner no one will question, made use of the following language:

"In this matter of preliminary medical education, it seems to me that the cart is put before the horse. Let us perfect ourselves in dentistry, and then, if we choose to adorn ourselves with a medical education, all very well. The difficulty is that we attempt to lay the foundation in the science which does not include our own at all, or, if at all, only to a small extent What is the difference between dentistry and medicine? The foundation principles upon which dentistry rests are anatomy, physiology, and chemistry, including also special pathology, therapeutics, and materia medica, with what we call operative and artificial dentistry. These compose the basis upon which the science of dentistry rests. It does not include an accurate knowledge of obstetrics and gynecology, nor an accurate knowledge of fevers and the like. Why should we educate ourselves, or require others to educate themselves, in branches that do not essentially belong to our profession? Why should we educate ourselves in non-essentials first, and in essentials afterward? Let us have the essentials first, and then, if other things can be added to advantage, that is a good thing."

Since writing the foregoing, I am in receipt of a letter from a practicing dentist, a graduate of medicine and a professor in a dental college, who speaks from experiment and experience. He says:

"My experience as one of the founders of an institution of learning for the purpose of educating medical graduates to practice dentistry has convinced me, against my will, that it is impossible to

make skillful dentists, as a rule, from such material. A young man who would be a successful dentist must begin his study with his mind fixed, as far as possible, on his life-work. I am in favor of dentists studying medicine, but not engaging in medical study until after they become dentists. Oral surgery is a legitimate specialty of medicine; not so with dentistry. Oral surgery is taught in all schools of medicine, but who knows of a medical college in which men are taught dentistry? Dentistry, therefore, is not, nor can it ever be, a department of medicine, or a specialty of medicine in the sense that is ophthalmology, etc. This conclusion I have arrived at against my will. I have been forced to these convictions, and have abandoned a pet theory in consequence thereof, and these conclusions are not founded on theory, but facts which have been established on the firm ground of an expensive and hard-earned experience."

My own convictions must be already foreshadowed: dentists must be taught in dental schools, and dental schools must teach everything that a dentist needs to know which pertains to the practice of his profession. It is not a matter of any consequence whether such schools form a department in a university or maintain an independent organization, so long as the student secures the best training to fit him for his professional career. The question of a preliminary education is fast settling itself. The position which a dentist is to assume through life, as a professional man, demands at least what is known as a good academic education, and the dental colleges of to-day are recognizing this fact.

If I were to create a type which would be my ideal of a dentist, I would have him possessed of all the academical, classical and scientific knowledge that the world contains; and to crown it all, he should be a dentist. But such an idea is clearly chimerical. Life is too short and the capacity of the human mind too limited to make even an approach to it. Therefore, in the prescribed education of the dental student of to-day, only what is absolutely essential to make him master of his vocation is all that we have any right to require of him. After that, he may follow the bent of his natural tastes.

Let no man who may be disposed to criticise my opinions say that I am opposed to a thorough education, and more than all, I wish to disclaim any disrespect for, or any attempt to detract from, the value of a medical education. On the contrary, if any man feels that the study of and graduation in medicine is going to help

him in the practice of dentistry, by all means encourage him. He cannot have too much knowledge, be it of medicine or any other science. But if he be a dentist and has obtained the degree of M. D. by graduation, let him not be vain enough to conceive that by its possession he has thus acquired skill superior to those who have not, and then flaunt his title in their faces with the Pharisaical air, "I am holier than thou."

I know many a dentist who, having obtained all the knowledge of his profession that the educational advantages of his times could give, and yet thirsting for a knowledge of cognate sciences, has, with the cares of a not very remunerative practice, nevertheless devoted all his spare hours, and eked from his scanty income the means to enable him to graduate in medicine. All honor to such men, I say. God bless them. The spirit which prompts them entitles them to a higher place than the acquirement of the degree ever gives them. But, while I am full of admiration for him who has earned his degree, I have equal contempt for the dentist who, without a medical education, succeeds in making himself so solid with the faculty of some medical college that they confer the degree upon him, and thereafter he plays the part of a sycophantic hanger-on to the outskirts of a profession which he could not by any possibility practice.

Another issue is being forced upon us and rapidly approaching a crisis. An International Medical Congress is announced to be held in this country, at Washington, in September, 1887, and dentists are asked to form a section of that congress. It would not require a very astute observer to divine, from my present discourse, what position on such a question I would be likely to take. As an independent profession, we have no business there. As dentists, we are out of place. A section of oral surgery is eminently proper, and if there are oral surgeons enough in the world who want a section all to themselves, by all means let them have it, but do not hitch dentistry on to the end of the tail of the medical kite to give it ballast for a higher flight. From more than one source have I heard this humiliating argument in its favor: "We ought to form this section because it will give us such an excellent opportunity to obtain recognition." Do those who talk about "recognition" in this connection realize what the word involves? In plain language it means that our condition heretofore has been one of inferiority and

abasement, but by joining such a congress we shall immediately, by some sort of prestidigitation, be lifted into a very grand and inflential place. Dentistry in America needs no recognition that a medical congress can give. The only recognition which we need is that from all classes of the community, cultured and uncultured, and all professions, law, theology and medicine alike; a recognition that we are what we pretend to be—a benefit and a necessity to the health and comfort of the community. Any other recognition from a medical congress, even if filled with compliments, would be empty as sounding brass. If we are strong enough to form a section which will be a credit to dentistry in America, we are strong enough to have, in the not far-off future, a whole congress all to ourselves, and when that day arrives the eyes of the whole world will be centered upon us. We shall not be swamped in the multitude of specialties in medicine, like the poor relations who are invited to the feast but find themselves sitting at the second table. Fortunate it was for posterity that Chapin A. Harris and his colleagues were denied admission to the medical colleges. They builded wiser than they knew. Dentistry, independent, has grown with a vigor unparalleled. Grafted upon the medical stock and drawing its life, not from its own roots, but from the tainted juices of the parent tree, it would have been stunted and dwarfed beyond a possibility of redemption.

Dentistry has come to stay ; not as a specialty, but as an honorable, dignified, learned, scientific, beneficent and independent profession. If to-day all the medical colleges, together with the entire medical profession, were blotted out, the practice of dentistry would not be injured in the least, nor would humanity, suffering from diseases of the teeth, be one whit the less cared for.

Dental colleges have come to stay. The degree of D. D. S. has come to stay, and dental societies—of which this New England Society is no mean type—have come to stay. Dentistry will exist long ages after you and I are forgotten. Even in that day of Paradise regained—when medicine will be no more, because disease has been banished from off the earth, and dental surgery has become a past history (because decay of the teeth has been prevented)—prosthetic dentistry then, alone of all the beneficent professions, will survive to supply the losses incident to advancing years, a blessing and a comfort to the toothless aged.

ON THE ABSORPTION OF DENTINE; ITS RELATION TO THE PROCESS OF REIMPLANTATION AND TO DECAY OF THE TEETH.

BY PROF. MILLER.

Absorption of the roots of temporary teeth has been thoroughly and carefully studied, and I have made no attempt to repeat the investigations which have been made concerning the nature of this process.

It appeared to me, however, that a study of the phenomena of absorption of dentine under conditions which exclude the possibility of the dentine itself taking any active part in the process might add something to our knowledge of this question, and possibly be of some use in determining the relation which this process bears to the fixation of reimplanted or transplanted teeth, and to decay of the teeth.

The experiments were performed upon rabbits; the material, taken from the roots of teeth partly dry and partly fresh, was sawed into sections about one millimeter thick; they were then washed in distilled water with 0,75 per cent. common salt. The dry sections were previously sterilized with absolute alcohol, but the fresh ones were not, the aim being to keep the pericementum as unchanged as possible. The rabbit was then placed upon its back, the hair removed from the abdomen for a space as large as a silver quarter of a dollar, the skin wiped with sublimate (1-1000), a slit about one-fourth of an inch long made through the wall of the abdomen, and two or three of the sections brought into the abdominal cavity with sterilized pliers. The cut was closed by a simple stitch and protected by a coating of iodoform-collodion. Six rabbits in all were treated in this way, and apparently suffered no inconvenience whatever from the operation. The rabbits were killed after periods varying from three weeks to three months.

In three weeks the pieces were found surrounded by a thick capsule of connective tissue, densely filled with round cells. The dentine was firmly enclosed and held in the capsule, but not attached to it. On decalcifying and making sections, the dentine separated from the connective tissue, leaving a hole in each section exactly corresponding to the size and shape of the cut of dentine.

In six weeks resorption had begun at nearly all points destitute of pericementum, whereas at those points covered by pericementum a perfectly firm union had taken place with the surrounding tissue,

so that the dentine could not be removed without tearing the tissue. In this case, when sections were made, the dentine did not separate from the tissue of the capsule.

In no case did a firm attachment take place where the pericementum was not present, although a slight *pseudo*-attachment was produced by the bundles of connective tissue which filled up the irregular resorption spaces. It might be put down as a law for those who practice replanting and transplanting teeth: "Preserve the pericementum, for to that extent to which it is removed, to the same will the success and permanency of the operation be hazarded." For the same reason I am inclined to think that removing the point of the root, except it be diseased, is a mistake, and will result in resorption, advancing from the apex toward the base of the root. I have read many reports of teeth being replanted after they had been out of the mouth for hours, or even days, and in some cases lain in the dirt, and which became firmly attached again.

It is quite possible that any tooth may become fixed by a sort of encapsulation of the root, or by a pseudo-attachment, as mentioned above, but such a fixation can hardly be permanent, and I think experience will show that such teeth fall out in the course of a few weeks or months. It must be borne in mind that these conclusions are based solely upon the above experiments upon rabbits. They are, however, completely confirmed by the replantation experiments of Leo Fredel,* made on dogs; also by the experiments of Morgenstern, and by my own examination of a tooth which was re-extracted two years after reimplantation.

The fixation of reimplanted or transplanted teeth may, therefore, be accomplished in three ways:

1. By simple encapsulation of the root. This mode of attachment is, I believe, frequently referred to in dental literature.

2. By the bundles of connective tissue which fill up the irregular absorption spaces, just as a very porous body might become attached to soft tissue by the latter growing into and through the interspaces. I have a number of specimens showing this mode of union, which I have called a pseudo-attachment.

3. By a direct union of the surrounding tissues with the *living* pericementum. This I am inclined to look upon as the only permanent attachment.

* Oesterreichisch-Ungarische Vierteljahrschrift, July, 1886.

In all the cases the resorption was characterized by the fewness of osteoclasts, the resorption apparently being carried on by the small round cells which accumulated in immense numbers around each piece of dentine, so that in sections stained with picro-lithiocarmine the dentine appeared as a yellow spot surrounded by a deep red border. The opinion has been expressed that in this case the resorption was produced by osteoclasts which afterwards disappeared, giving place to fibrous tissue. The absorption took place in territories, giving rise to a ragged, scalloped border, such as is ordinarily met with in roots undergoing absorption. At the end of the third month only a trace of the dentine was to be found.

It seems scarcely necessary to state that there was not a trace of a similarity between the process of absorption, as seen in the specimens under consideration, and decay of the teeth, and indeed it appears to me exceedingly doubtful whether we may, under any circumstances at all, liken absorption to *caries dentium*.

The first process takes place only in the presence of, and under the action of, living tissue; the second process is carried on completely outside of an enveloping living tissue, and only under the action of certain external agents. In the first process we find a simultaneous disappearance of the organic and inorganic constituents of the dentine, giving rise to a hard, rough, ragged surface; in the second, the destruction of the non-organic constituents goes far in advance, leaving a soft mass, as unlike the surface of a root in absorption as it possibly could be. Nor is there anything in the advanced stages of caries which could for an instant be mistaken for absorption. As for the medullary elements, claimed by a few to appear in decaying dentine, we should use a much more positive and less negative evidence than has been thus far presented before we should be justified in accepting their existence.

It is usually stated that in absorption of dentine the lime-salts are first removed, the organic matter later. I do not know on what grounds such a statement is based. It is patent to every dentist that roots undergoing absorption do not become decalcified, but that the whole tissue disappears simultaneously. In the experiments under consideration, I was not able to detect a trace of decalcification, and I have furthermore found that pieces of dentine which have been reduced to the size of a very small pinhead by absorption still remain perfectly hard and undecalcified.

HERBST FILLINGS.

BY DR. J. P. GERAN, BROOKLYN, N. Y.

READ BEFORE THE SECOND DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK, NOVEMBER 2, 1886.

Most cheerfully and gratefully do I pay my tribute to the man whose early foresight, skill and inventive genius has worked out and developed a method in dental practice which economizes time, makes labor and work pleasant, and, in a measure, does away with the nervous strain incident to both patient and dentist. Although yet in its infancy, I am convinced that its subsequent advancement will bring forth maturing fruits, by which I trust we all will be benefited.

Filled with many misgivings, with doubts and fears as to the character of his reception, our friend came to our shores to demonstrate a system which had absorbed his time and faculties, and called forth all his latent power and genius. A steadfast friend, unfaltering in his devotion, urged Dr. Herbst to visit America, knowing full well that the warm sympathy of his transatlantic brethren would be extended to him. To-day all his doubts and fears have been dissolved, and whether by the side of the dental chair as demonstrator, or at the festive board, the hand of cordial friendship has been extended and a grateful appreciation accorded him. We are compelled to recognize the fact that the very best years of the doctor's life have been devoted to the fulfillment of his dream, and though all may not agree concerning its merits, and many may be disposed to criticise, as it is their right to do, yet we must be compelled to admit the honesty of purpose and the sincerity and singleness of mind of the man.

If his method be fully investigated and discussed, if prejudice be laid aside in the investigation, there are no fears for its ultimate recognition by the profession. Public opinion must frequently be educated and advanced with a large measure of faith. I am of those who believe in laboring for ultimate good.

New theories, new methods, like fresh seed put in the earth, will, if tested and appreciated, bring forth a harvest; and I congratulate

one and all who have given hand and voice to the promotion and advancement of this system.

For many years the dental profession was wedded to hand-pressure for filling teeth with gold, tin, etc., and when the mallet was introduced many condemned it and advanced strong arguments against it, such as the liability to fracture frail and thin walls, the production of inflammation of the periosteum, with the subsequent death of the pulp, and numerous other ills unnecessary to mention. But the thoughtful and progressive men of the age saw the utility of it and urged it forward, and to-day nine-tenths of our operators have adopted the mallet system.

There is no department of science and labor in which there is greater need of scientific and practical training than in dentistry. Success is dependent upon skill, and while a considerable knowledge of general science is not absolutely essential to a man who simply fills teeth, it is a valuable aid which sometimes leads men to avoid blunders costly to their patients and themselves.

To afford an intelligent and satisfactory explanation of the Herbst method would require a far more extended personal experience than it has been my fortune to have. That there is in it something good and practicable, which American dental ingenuity will aid in developing and bringing to perfection, there can be no doubt. My patients are gratified, and most positively declare themselves much pleased with this new method.

In one of the dental journals of last year, Dr. Bödecker said that it would be well to fill about seven-eighths of the cavity by the Herbst method, and finish the masticating surface with the mallet, fearing, I suppose, that the operator would not succeed in making the gold cohere sufficiently to complete the filling with a smooth surface. In a recent conversation with him, he informed me that he now completes the whole operation by the Herbst method, and the experience I have had with it teaches me that the whole filling can be readily done with the rotary instrument. I sometimes make retaining pits, fill them as usual by hand-pressure or the mallet, then add two or three large cylinders, cover them with cotton, and force the whole down or against the cervical wall, moving the instrument freely about the cavities. The retaining pits and the cotton prevent the gold from moving. I then use a smaller rotating instrument for forcing the gold against the sides and the matrix, if one

is used. After the bottom is well covered and condensed, I add cylinder after cylinder, burnishing each one down thoroughly before adding another, examining frequently for soft spots, and if any are found, condensing and filling them even with the other part of the filling, keeping all as level as possible, and when the cavities are nearly or quite full, I finish with No. 30 gold.

In contouring the superior laterals, I make the restoration without a matrix. I first cut the usual groove, packing the gold in the undercuts with the mallet, then continuing with the rotating instrument until the cavity is flush with the margin. Then, with a bloodstone rotating point, I burnish on ribbons of Williams' electric gold, making the restoration complete, and the finished filling as dense and hard as if made with either the hand or electric mallet. Unless large pieces are employed, it does not require as much pressure as Dr. Herbst appeared to use. All that is necessary is to anneal the gold slightly, bring each pellet in contact with that which has already been condensed, pass the bloodstone or agate instrument over them a few times, keeping the angles down and the whole as level as possible, and it will be found that a filling has been made quicker than by the old method, and in a manner that will allow finishing with a perfect surface.

IMPLANTATION OF TEETH.

BY G. L. CURTISS, D. D. S.

READ BEFORE A UNION MEETING OF THE 5TH, 6TH, 7TH AND 8TH DISTRICT DENTAL SOCIETIES OF THE STATE OF NEW YORK, HELD AT ROCHESTER, OCTOBER 26TH AND 27TH, 1886.

With your permission I wish to very briefly bring before this society, for consideration and discussion, the subject of implantation, or the ingrafting of natural teeth into artificial sockets.

Dr. Wm. J. Younger, of San Francisco, is credited with being the first successful, if not the only present, operator in what has been called the only new thing of to-day in dental surgery, and the

surprising and phenomenal success of that gentleman's experiments, I believe, makes this subject deserving of notice from this meeting.

The difficulties, with which you are all familiar, heretofore experienced by the dental profession in what is known as replantation and transplantation, seem to have been entirely overcome in what is now called by Dr. Younger implantation. The distinction between them is that the former operations consist in either putting back a tooth into a socket from which it has just been drawn, or the placing of a strange tooth in a socket from which one has been freshly extracted; while the latter operation, implantation, consists in making in the bone or process of the jaw an artificial socket, and ingrafting into such newly-made socket a stranger tooth that may have been extracted not a few hours only, but even months or years before.

Right here is one of the chief characteristics of the operation, namely, the successfully bringing into use and life teeth long extracted, which our profession has heretofore deemed an impracticable, if not an impossible thing to do; and if it be true as claimed, and I believe it is, that the cementum of the tooth will retain life for months, or even for a term of years, enabling it when placed in the socket to be revived and unite with the surrounding tissues and assume the normal conditions of a healthy tooth, then, as Dr. Younger truly says, implantation will soon be as firmly established among us as any operation requiring skill in dental surgery.

A paper upon the subject by Dr. Younger, and read before the San Francisco State Dental Society a little more than a year ago, so attracted the attention of the Chair of Dental Surgery of the University of Pennsylvania, that the subject was at once brought before the students of that institution as a new and very important step in dental science. That article, those lectures, which it was my privilege to hear, and subsequent articles upon the subject by Dr. Younger, so interested me that I resolved to put myself in communication with the San Francisco gentleman, and learn more of the details and practicability of the work. This I did, and with the aid of that gentleman's kind suggestions as to mode of operating, instruments, etc., I, a few weeks ago, decided I had made a sufficient study of the matter to safely undertake the work.

At the date of this writing I have performed five operations of this kind, in which I have implanted six teeth, and if I can intelligently judge from present indications, my work has been crowned with success as complete as ever experienced by Dr. Younger.

Three of the patients declare there was not even a soreness of the gums after the morning following the operation; all united in saying that they have observed no unusual or unpleasant results from the operation, and in every instance the teeth and gums present a healthy and natural appearance, the teeth fast becoming firm and solid as others in the mouth.

In my first case a slight swelling of the face appeared, which was soon removed, and this slight disturbance is all I have to report in the line of adverse results attending my operations.

My first was the placing of a superior second bicuspid in the place of a molar which had been extracted six years before. In my second case, the superior left bicuspid and the first and second molars had been lost seven years previous to the operation. I implanted a second bicuspid, and two weeks later two molars, completely filling this space with natural teeth.

My next patient had lost the superior lateral incisor. Being unable to obtain such a tooth, I took the root of an inferior bicuspid and attached a Richmond crown, filling the space and matching color, etc., to correspond with the rest of the teeth. My other patient had lost a lateral incisor from the effects of an abscess. There was a great deal of wasting of the alveoli, although the tooth had been out about two weeks only. In this case I took the root of an eye-tooth and attached a lateral incisor crown. Absorption had been so great that there seemed but little besides the gum remaining. I drilled into the old socket, finding only small traces of bone in which to imbed the new tooth. The tooth did not, under these circumstances, have the firmness of the others I have referred to at the time of the operation, but is now becoming quite firm, looks perfectly healthy, and all soreness is gone.

My mode of operating, briefly stated, is as follows: The tooth receives the ordinary treatment, as in transplantation, the pulp being removed and the pulp canal filled, and is placed in a solution of bichloride of mercury, which, in turn, is placed in warm water and raised to a temperature of 110° or 115° F., and allowed to remain

from thirty minutes to an hour, according to the dryness of the cementum.

The gums I dissect away, laying bare the process, and with a spear-pointed drill start the socket on the line in which the tooth is to be placed, following this with larger drills and trepans, until the socket is the size of the tooth I wish to insert, when with corundum points I make smooth the walls of the socket. After syringing and thoroughly cleansing and disinfecting with a solution of bi-chloride of mercury, I insert the tooth, which should fit nicely and firmly in the new socket. I place closely fitting bands of gold or platinum about the implanted tooth and its immediate neighbors, thus forming a yoke to prevent any motion in or accident to the new tooth from mastication or otherwise. I have found two weeks a sufficiently long time, in most of the cases, to keep this on the teeth, the implanted one in that time becoming apparently almost as firm as the other teeth around it. I direct the patient to use a disinfecting mouth wash for a day or two after the operation.

Of course an operation so similar to those operations known as transplantation and replantation, in which so many failures have been experienced in the past, will not at once be received by the profession without some doubt as to its ultimate success, but if you will consider that in both those operations you often have to deal with diseased gums and sockets, in which it has been found impossible to keep alive the patient's own and natural teeth, and contrast the difficulties in making a foreign and stranger tooth attach and unite with such diseased gum with the more propitious circumstances of this operation, in which you seek to make a healthy tooth unite and grow in a perfectly healthy process, you will see the more favorable chance of success in the latter operation.

The greatest obstacle the writer deems likely to be met in these operations is the difficulty incident to getting suitable teeth from patients in whom the dentist has positive knowledge that there exists a high standard of health, with absence of impurities of the blood, etc.

With the exception, perhaps, of persons subject to hemorrhage and erysipelas, or in a low state of vitality, I belive every individual who wishes may safely have such operations performed, with a reasonable assurance of success.

DR. YOUNGER AND IMPLANTATION OF TEETH.

BY C. A. MARVIN, D. D. S.

Having been favored with an invitation to witness the operation of implantation by Dr. Younger on two occasions recently, I have been asked to give my impressions. The teeth inserted were a right upper first bicuspid, and left lateral incisor, for a young lady, and a right upper lateral incisor for one of our own profession. The bicuspid was planted about two weeks before the other two, at Dr. Jarvie's office; the two incisors, November 4th, at the office of Dr. Hill. The *modus operandi* having already been described in this journal, it is not necessary to consume time and space in repeating it. As to the theory of Dr. Younger, I have only this to say: It is too late in this day of scientific revelations to exclaim, "It is false," for we are constantly confronted with scientific facts which cannot be accounted for except upon the very theories claimed by those who present the facts, and which are seen to be accountable when the theory is acknowledged. This being so, it is not the part of wisdom to deny a theory which leads directly to the result seen, unless another, equally direct and more reasonable, can be substituted. It will not do to say, "I do not believe it," for the cases are before us, and "facts are stubborn things."

There is an alternative theory which I have been inclined to adopt, viz., that the implanted tooth is cemented in its newly-formed socket by the osseous exudation from the freshly cut bone. But this theory is rudely shaken by the fact that the gum borders are found to be firmly connected with the neck of the newly inserted tooth, which condition of things would not necessarily follow the mere cementing of the root. No, there must be vital action to produce this result.

As I understand it, the theory is that the pericementum covers the root and is firmly attached to it. The outer surface of this membrane retains its characteristics as when freshly torn from its former attachments. It may be dry, withered, so shrunken as to be almost imperceptible, and still possess those characteristics. Now, if it can be rehabilitated, put again in a receptive condition, and then placed where the surroundings are favorable for renewed nourishment, and have that nourishment supplied from a vital source, itself vital, warm, appropriate, a renewal of vital action may be expected, and firmness of attachment, living attachment, ensue.

It goes without saying that all this is contrary to the long-accepted laws of physiological action. We have all been instructed differently, and many of us are exceedingly tenacious of the views thus acquired. But here we are brought face to face with a different theory; operations are boldly and confidently performed before our eyes; cases are presented for our examination and we are asked to observe critically, to test carefully, to think seriously, before we accept.

Indeed, we are not solicited to accept at all. Dr. Younger is no suppliant. He simply comes before the profession and says: "Gentlemen, I am persuaded that the implantation of natural teeth in artificial sockets in the human jaw can successfully be performed."

With no undue boastfulness of manner, but with perfect frankness, he shows just how he does it, explains his theory, gives his reasons, conceals nothing, claims nothing of personal excellence, charges nothing. His manner challenges our admiration. His manipulation is direct, dexterous, confident. His generosity in giving to the profession the results of years of study, speaks the liberality of the man.

The test of time has yet to be passed. Meanwhile, it is only just to furnish to every case every accessory favorable to its success. In our examinations of cases that we are allowed to see, we should be mindful of this fact, and by no rough handling defeat or hinder the healing process of kindly nature. We ought to wish the operation and its inventor success, not failure. Hence the delicate touch, the gentle handling, the careful avoidance of harshness, when examining a newly implanted tooth, should prove the sincerity and worthiness of our wish. The small boy who pulled up his beans every day to see if they had sprouted, deserved ridicule no more than the dentist, who seizes and violently wrenches a newly implanted tooth to see if it has grown fast, deserves censure.

And it is just here, if anywhere, that I feel inclined to criticise Dr. Younger a little. He is not mindful enough of conditions and accessories. He does not exercise care enough in selecting the teeth to be implanted, but consents to perform the operation with as much readiness when the tooth to be inserted is not an appropriate one, as when all things are favorable. He may have perfect confidence in his success—he doubtless has—but to onlookers it seems hardly wise to ignore any condition that would contribute to a good result. Especially in the infancy of a line of practice, when its efficiency is

yet to be established, is this so. Dr. Younger's good nature runs away with his judgment. He does not like to disappoint those who have come together to see him operate. While this is very kind in him, it does him an injustice.

These operations are a new departure in dental surgery, novel, unique, wonderful, and we shall eagerly watch for the result after years have gone by and the time-test is fully satisfied. Meanwhile, it is safe to say, the highest and best sentiment in the profession inclines toward Dr. Younger in warm sympathy, and utters itself in a sincere wish that the operation introduced by him may prove an undoubted success, and be adopted as a legitimate department of the dental surgery of the future.

PREHISTORIC DECAY OF THE TEETH.

BY DR. C. T. TERRY.

Read before the American Dental Society of Europe, Aug. 2, 1886.

What is meant by the prehistoric decay of teeth spoken of by those who have written on this subject? Do they mean to imply the condition of the teeth of people in general in prehistoric times, or do they mean the condition of the teeth of that small class of prehistoric inhabitants of the earth of which there is some record, not written, but handed down to us in the form of human remains found in tombs?

To what class of the prehistoric inhabitants do these remains belong? Certainly not to that great order who were nothing more than slaves; people who could not live otherwise than in the simplest manner, and subsist upon the simplest food of that period.

What was the manner of life of those whose skeletons have been preserved? Having but little knowledge of hygienic laws, and as little use for such knowledge, being at the same time the privileged class, how would they probably live? If the rich in our times, with their knowledge of sanitary matters, indulge in luxury to an unlimited extent, what could be expected of that small class who ruled supreme in prehistoric times? Fortunately for them, as regards health, they could not indulge in the same number of preparations for the stomach in the way of food and drink that we can, but in other forms of dissipation this class, no doubt, had advantages over us. For thousands of years the ruling class have

habituated themselves to the use of fermented drinks, especially wine, drinking to excess new wine, thereby producing derangements in the functions of the stomach.

Among the excavations at Pompeii the immense earthen vessels for holding wine are conspicuous, and there are many other evidences of great profligacy among the inhabitants of this ancient city. I examined several skulls of those who were buried in the ashes, and found many instances of decay in the teeth. I think it can be proved that the ruling classes of Europe have not lived hygienically for hundreds of years. The skeletons which have been preserved generally belong to this class, for they were found buried in churches or tombs that have been kept in good condition for centuries. How many of the skeletons of simple peasants, who lived at the same period, have been preserved ?

In order to ascertain the normal condition of the teeth of the human race, it is necessary to go back to the period when they chose their food instinctively. There was a time, no doubt, when man had no more inventive ability than the monkey. But man, of all animals, is most progressive. When he had reached that period of mental development which would enable him to invent, what would be his first efforts in this direction ? Naturally, in his uncivilized condition, he would bring his creative ability to bear upon something that had to do with his food, or upon some weapon of defense or of destruction. Probably the first change which he made in his food was to cook it, and from this he has gradually gone on until our diet has reached its present complicated or artificial condition. Perhaps his very first change, even before cooking his food, was to construct a habitation of some kind for protection against heat and bad weather.

The more he advanced intellectually, the more complicated and artificial became his manner of living. No doubt it was several generations, or even hundreds of years after man began to change from his normal condition, before decay of his teeth began, on account of the comparatively primitive way in which he was still compelled to live, and the perfectly healthy condition of his osseous system. Undoubtedly, before man began to change his normal condition, when he was compelled to choose his food instinctively, there was not such a thing known as a decayed tooth. If so, it was the result of accident, such as fracture in battle or otherwise, form-

ing a receptacle for a quantity of food which fermented and dissolved the bone; and it is still a question, even under such circumstances, if the healthy condition of the fluids of his mouth would not have prevented decay in such a case.

As man advanced in civilization, his habitation became more luxurious, his food and drink more complicated, and his occupations less invigorating, and confinement of the young under shelter for purposes of education more frequent. This gradual departure or change from the normal condition of the human race, which has been going on for thousands of years, has finally caused a great degeneration in the tissues and functions of the system, bringing the teeth into a condition to be acted upon in the mouth by direct causes of decay, such as acids and putrefaction. I am quite sure that agents which cause decay of teeth in the mouths of the present civilized generation would be harmless in the mouth of the uncivilized man who chooses his food instinctively.

Decay of the teeth is certainly not of modern origin. I believe it to have existed to a certain extent for hundreds of years. It has been increasing gradually, and has kept pace with the rapid increase of inventions in general. There has been about as much inventive ability brought to bear upon that which enters the stomach of the civilized human being in the way of food, drink, medicine, etc., as upon machinery. What wonderful strides we have made in mechanical and physical discoveries and inventions during the last two hundred years; and what a vast accumulation of mixtures have been invented for the human stomach in the same time.

How much more confinement in impure air in schools, factories, etc., is there than formerly, and how much less pure air we inhale than did our uncivilized ancestors. If the inhabitants of this world at a former period were as far advanced as we now are in civilization, I am also sure that their teeth were as bad as ours at the present time, and there is no doubt if, at any time past, man had reached the inventive perfection which we have, he would have lived just as artificially as we do now, the result of which is decay of the the human teeth, notwithstanding all our scientific knowledge, which at best can only prevent decay to a certain extent; and unless we can discovor a manner of living which will again produce the perfectly healthy organisms of man in his normal condition, when choosing his food instinctively, teeth will continue to retrograde.

Reports of Society Meetings.

NEW YORK ODONTOLOGICAL SOCIETY.

Reported for the Independent Practitioner.

The first meeting of this society for the season was held in the parlors of the Academy of Medicine, on Tuesday evening, Oct 12th, Vice-President Dr. J. Morgan Howe in the chair.

The meeting was largely attended, and its interest greatly augmented by an address from Dr. William J. Younger, of San Francisco, on the subject of tooth implantation. The doctor described at length his methods of operating in implanting, transplanting and replanting teeth, also citing a number of interesting cases in which such operations had been successfully performed.

The members of the society were particularly favored in having present one of Dr. Younger's patients, who happened to be in New York at that time, and who kindly consented to attend the meeting, thus giving those present an opportunity to view and examine what seemed to be a successfully performed operation. The patient, a lady in middle life, had a left superior central incisor which, from pyorrhœa, had become so loose as to drop down upon the lower lip. This, together with the superior left lateral incisor, which also had become diseased, was removed by Dr. Younger, and the alveoli deepened, obliterating all traces of the disease. The teeth were opened from the foramen and the canal contents entirely removed, and after being disinfected in a bath of bi-chloride of mercury, were filled with gutta-percha to within a short distance from the apex, the remaining space being filled with gold. The ends were then slightly ground, smoothly polished, placed in position in their newly prepared sockets and ligated.

Some years previous to this operation this patient had lost a right superior second bicuspid, and in the space Dr. Younger separated the gum and cut into the bone, forming a new alveolus for the reception of a tooth. One of the proper size and shape having been selected and properly prepared (similar to the other cases mentioned), it was forced into the new opening, where it now remains fixed and firm.

Vice-President Howe appointed a committee of three, naming Drs. Atkinson, Jarvie and Lord, to carefully examine the teeth in the lady's mouth and report to the society, the members taking a recess during the interim. After a careful examination by these gentlemen, Dr. Atkinson introduced the small blade of a pen-knife between the gum and neck of the bicuspid, producing slight pain and starting a little blood. He expressed himself highly pleased with the appearance of the teeth, and believed them firmly attached. Dr. Jarvie stated that, so far as he was able to judge by examination with the mouth-mirror and testing their stability with his fingers, they were as firm in their attachment as any teeth in the lady's mouth.

Dr. Younger was asked how long a time the implanted bicuspid had been out of the mouth from which it was taken, and replied that he could not say with certainty, but it might have been weeks or months. This, however, he considered immaterial. His theory is that, however dry may be the investing membrane of the root, it still retains a germ of life, and, much like seeds, requires only proper nourishment to become re-vivified.

Dr. Carl Heitzmann and others expressed adverse opinions regarding the re-vitalizing of the pericementum, believing that, with the extraction and drying of a tooth, the membrane forever loses its vitality. It was also stated that, even if the dried membrane retained dormant life, the immersion of the tooth in a solution of bichloride of mercury would surely destroy it. The idea was advanced by a member that, even though the pericementum was devoid of vitality when placed in the newly-prepared socket, living matter might penetrate its meshes and thus form an attachment between tooth and alveolus, on the principle of sponge-grafting.

Dr. Weld stated that a few years ago he was quite as enthusiastic as Dr. Younger now is on the subject of transplantation and replantation of teeth, and had performed such operations in many instances, often attaching porcelain crowns to natural roots. He had been careful to preserve the membranes surrounding the roots, but of all the cases he had treated, he believed that few, if any, could be considered permanent, or could be termed an entire success. He predicted for Dr. Younger the disappointment and ultimate failures he himself had experienced.

In reply to a question asked, Dr. Younger said that he had

patients in the west for whom he had performed these operations years ago, and teeth thus inserted remained firm to the present time, and notwithstanding Dr. Weld's prediction of failures, he was satisfied with the results of his operations.

Dr. A. H. Brockway was pleased to have seen the result of the operation as presented in the mouth of Dr. Younger's patient, who was present at the meeting. He stated that good dentists put good fillings into teeth, yet some of these might keep the cavities from decay for only three or four years, and then come out. He would not consider such cases exactly in the light of failures. It is so with the operations described by Dr. Younger. If they are the means of saving our patients from the necessity of wearing plates of artificial teeth for a number of years, they were of benefit, and should not be classed as failures.

Two patients were also at the meeting for whom Dr. Younger had implanted teeth a few days before, and the operations seemed to indicate successful results.

A vote of thanks was tendered to Dr. Younger for his comprehensive paper, and the explanations following; also to his lady patient for so kindly submitting her teeth to the inspection of members of the society.

MEETING OF NOVEMBER 9TH.

The November meeting of this society was held at the rooms of the N. Y. Academy of Medicine on the 9th, Vice-President J. M. Howe occupying the chair.

Dr. W. G. A. Bonwill, of Philadelphia, the essayist of the evening, read an interesting paper, reviewing the various methods in vogue for condensing gold foil. His text seemed to be "Rotation *versus* Filling by Hand."

The method of consolidating gold foil by revolving instruments, as introduced by Dr. Herbst, was so antagonistic to his idea and method of filling that he was induced to give much time and attention to the inspection of this method of practice, and he was therefore a close observer of Dr. Herbst's manipulations in various places where he was giving clinics. Asking himself this question—"What do I think of Dr. Herbst?" the essayist replied by saying that he had been anxious to see him and to inspect his methods, which were so opposed to those cherished by himself. All were able to see what

had been produced by the various methods previously adopted for filling cavities, "and how many," asked the doctor, "think former methods have all proved failures? Have we just awakened to find the old ways faulty?" He would give credit to the brother from the Fatherland who, when laboring under great difficulties and working against adverse circumstances, had, by persistent effort, accomplished so much, and who had so generously imparted to others the knowledge thus acquired.

Dr. Bonwill also referred to the modest bearing of Dr. Herbst, who, during his visit among us, stated that if he could have foreseen what he had since witnessed in the operations of American dentists, he would never have ventured here to demonstrate his method. "Are we now," asked Dr. Bonwill, "prepared to recognize this new method as the best?" In accomplishing good results, does the success depend on materials or men? Dr. Herbst knew the peculiarities or ways of gold, and how to render it pliable; also how best to adapt means to ends.

Dr. Bonwill claimed that his method of condensing gold with the mechanical mallet made perfect adaptation with less labor, and insured better results. It was pleasanter for patient as well as operator, and in every respect more satisfactory. He deemed practicability and adaptability the essential requisites to be considered. He discovered that Dr. Herbst did not consolidate the foil solely by rotation, but much of his work was done by hand-pressure instruments, and he tested every part of each filling with sharp points to make sure that the gold was properly condensed. Dr. Bonwill would not like to spend so much time in packing by hand-pressure and then condensing by rotation, neither did he like to retain the thin cavity margins which are so likely to break away. He would prefer a surplus of metal to overlap the edges, which could be nicely and securely trimmed away in finishing.

He did not consider clinical operations a fair test of an operator's ability, on account of the disadvantages under which he labors. He thought a good operator should pursue a system and see the end from the beginning. To forestall the attack of caries in future, he would not resort to the Herbst method of preparing cavities. He considers the saving of time an object in dental operations, and, furthermore, the average operator would not be able to succeed well in adopting the rotation method. He believes that dental opera-

tions are constantly improving in character. He would not give up the mechanical plugger. If it did not do perfect work it was the fault of its manipulator, and not the instrument. He would not lay it aside for any new appliance, feeling a sense of greater security in his old boat which had safely carried him over stormy seas. He thought few fully understood the working of the various appliances. He considers it impossible to slide the gold against the walls of the cavity by single blows, and believed that the pushing blows of the automatic spring mallet gave a wrong impact. He contends that we need an instrument that will slide smoothly and can be easily guided; one that will carry the gold back and forth across the cavity and well against the walls with lateral movements, leaving it concave in the center of the cavity, and working each way until the walls are secure, then completing the operation by rounding out the center. He suggests soft foil for lining cavity walls, and small points for condensing, the whole being finished with cohesive gold.

The instruments devised by Dr. Bonwill have rounded working tips and are finely serrated, so that in pushing or pressing they carry the foil before them, instead of cutting or tearing it. He is in the habit of cutting the foil into strips, and with his engine mallet lapping their flat surfaces together in the cavity. He believes in light blows, given with rapidity. He is careful, not only in filling cavities, but equally so in their preparation, looking particularly to smooth walls. If necessary to anneal his gold, he does not carry it directly in the flame, but heats it on a thin plate of platinum.

He has struggled for years to acquaint the profession with his mallet and his method of filling teeth, and he was glad to notice that his efforts were showing signs of appreciation.

Upon the completion of his paper, Dr. Bonwill passed around the room for inspection some of his fillings which had been removed from cavities in which they had been impacted, and again beaten into foil. The specimens were conveyed between sheets of glass.

A vote of thanks from the society was given to Dr. Bonwill for his paper, and it was moved that, owing to its length, it be discussed at the next meeting of the society, and that the author be invited to attend.

After the motion was carried, Vice-President Howe asked Dr.

Bonwill if he would exhibit to the society his new tooth brush, and say a few words regarding its merits.

Dr. Bonwill passed a number of the brushes to the members, but owing to the lateness of the hour reserved his remarks for a future occasion.

Dr. Beverly Cole, of San Francisco, being present, was introduced to the society, and stated that although not a dentist he had been much interested in listening to the paper read and the remarks following. He had been quite a traveler in this and other countries, and had found that on the other side of the ocean American dentistry was admitted to be by far the most advanced in the world. In medicine, however, the Germans were considered to be ahead, but after visiting many German hospitals he felt convinced that this advance was in theory only, for students were led from bedside to bedside, and with pencil and slate noted the muscular movements of each patient and their general condition, then were passed to the next in turn without attention to remedial measures. He considered the young American physician, as is everything else American, to be practical, and while carefully noting the conditions of their patients, they at once administer to their relief or operate for their recovery. Dr. Cole said that if his life was endangered by illness, he would trust it to the care and keeping of the young American physician in preference to all others.

FIRST DISTRICT DENTAL SOCIETY OF NEW YORK.

Reported Expressly for the Independent Practitioner.

The society held a regular meeting at the rooms of the S. S. White Dental Manufacturing Co., corner of Broadway and 32d Street, on Tuesday, November 2d, at eight o'clock, the President, Dr. Wm. Carr, in the chair. After the minutes of the last meeting were read, and several new members had been elected (one of whom was Dr. Wm. Herbst, of Bremen, elected an honorary member), the President called for the report of the Clinic Committee, which was read by the chairman, Dr. Bödecker, who reported an interesting clinic, with an attendance of about one hundred and ten persons. Dr. M. L. Rhein filled, by the Herbst method, cavities in the proximate and grinding surfaces of a first and second superior bicuspid. In the mouth of the same patient were some other large fillings, inserted in a clinic about three years ago, which were in good condition.

Dr. J. P. Geran, of Brooklyn, also filled a right lower first molar by the Herbst method, the cavity involving the mesial and grinding surface.

Dr. C. S. W. Baldwin demonstrated and explained the setting of a Logan crown, with gold cap over the root.

Dr. Lœwenberg filled, in seven minutes, a left lower first molar with Steuver's new gold, the cavity occupying the grinding surface of the tooth.

Dr. C. P. Brown exhibited some of his porcelain crowns with the new pins, which are placed in the crown in such a manner as not to be in the way of close articulations on the lingual surface, or to shine through the porcelain of the labial surface.

Dr. B. Hess presented a cabinet containing many interesting abnormalities in extracted teeth.

Dr. O. F. Coe exhibited the model of a case of irregularity, and an extracted tooth with an osteoma.

Dr. Geo. A. Mills showed a set of universal hand pluggers, with serrations upon the sides as well as the points of the instruments, to be employed for lateral as well as direct pressure.

Dr. C. F. W. Bödecker filled an extracted molar tooth with gold, by the Herbst method.

Dr. J. G. Morey presented a patient with necrosis of the lower jaw, in the region of the right lower first molar.

Dr. L. B. Wilson sent a letter regretting his inability to attend the clinic, but forwarded another sample of his plastic-gold white alloy for front teeth, and some specimens of pivot teeth. Dr. Bödecker did not desire to take the responsibility of the trial with the new gold upon himself, and proposed to divide it between Drs. Wm. H. Atkinson, Wm. H. Dwinelle and Wm. Carr, who would give the result of their trials at the next meeting.

Dr. Bödecker then announced that he could no longer answer all the letters of inquiry sent to him by other dental practitioners, as the number he had received last month amounted to thirty-six. He would be glad to give any verbal information in regard to cases, etc., at the clinic, or even at his office, upon appointment.

Dr. Wm. H. Dwinelle made a partial report upon the plastic gold tried at the last clinic. He was sorry to state that he had not been able to continue the experiment to-day, as he had been out of the city, but would exhibit it at the next clinic. As far as he had

gone, he liked Dr. Steuver's gold very much, but he was wedded to his old love, Morgan's crystal gold. Dr. L. B. Wilson's gold he believed to be impure, or at least coated with shellac or some other resinous varnish, thereby enabling it to be packed by a heated instrument, but he was sure that every sensible dental practitioner knew that such a filling would not stand the test of time. He was, however, willing to give it another trial.

The President then called for the reports of special committees, when Dr. C. F. W. Bödecker made the report on the Herbst reception and clinics, all of which have been published in this journal.

Dr. D. W. Tenison reported that a special clinic was held at the rooms of the S. S. White Dental Manufacturing Co., on Friday, October 15th, when Dr. W. J. Younger was prepared to implant teeth into artificial sockets. There were two patients present, but in one case the space in which the tooth was to be implanted had been partially obliterated by the adjacent teeth, and in the other the patient was too timid to submit to the operation. Dr. Charles L. Andrews, however, volunteered to submit to an operation, and Dr. Younger extracted a devitalized lower central incisor, which stood so irregularly that the operator was obliged to make a new socket before a substitute could be implanted. Dr. Andrews has suffered no inconvenience since the operation, which, so far, seems to be successful. A very peculiar phenomenon which seems to attend these operations, is that teeth which, when first implanted, are not of the same color, in a short time seem to take on the hue of their near neighbors.

Dr. W. W. Walker announced that the President would call for a special meeting of this society, to be held Friday, November 19th, at eight o'clock P. M., when Dr. N. W. Kingsley would read a paper entitled "Dentistry Not a Specialty of Medicine." (This paper will be found on page 1 of the present number.—EDITOR.)

The President called for incidents of office practice. Dr. Vanderpant exhibited two models, with supernumerary teeth bearing distinct marks of hereditary syphilis.

Dr. W. D. Tenison reported the case of a lady who had worn an artificial plate bearing a right upper central incisor for over fifteen years, and which had been a great annoyance during all that time. On Dr. Younger's arrival in New York, he implanted a tooth in the space. There was a slight swelling around it the next morning,

but this soon abated, and at present it is quite firm and the surroundings seem healthy.

The President then called upon Prof. C. N. Pierce, of Philadelphia, who read a paper, entitled "The Recuperative Power of the Tooth." The essayist accepted the doctrine that every part of the tooth, except the enamel, is alive, and subject to structural changes, and anything that will disturb the vital functions of the general system will impair the nutrition of the teeth. In other respects Prof. Pierce adhered to the old cell doctrine. The essayist believed that the arrest of caries of teeth in adult persons is due to systemic changes, and occurs usually when but little lime-salts are required by the other tissues. He, therefore, advised systemic treatment in cases of fractured roots or exposed pulps, where new formations of bone are desired. The essayist showed an enlarged plaster model of an upper central incisor which was fractured and had been united again. The fracture commenced at the lingual portion of the neck of the tooth, and ran obliquely downward and forward to about the middle of the root. The crown was held in position for six weeks by a gold cap, this being secured by cement and ligatures. The patient was about fourteen years of age, male, with a good constitution.

Dr. Wm. H. Atkinson was very glad that this subject had been brought before the society, and spoke of a similar case of the united fractures of several incisors in the mouth of Mr. Bennett, who was exhibited before the clinic a few years ago. Most of the teeth remained alive, but one of them became discolored, although the fracture had united.

The President called upon Dr. G. W. Weld, who read a very carefully prepared paper on "Implantation and Replantation." The essayist has had a great deal of experience in replanting teeth. Whenever a patient with badly decayed front teeth had presented, it had been Dr. Weld's custom to extract them, cut off the crown, screw a porcelain crown upon the root, and after this had been filled, as usual, to reinsert it. In these instances he had a normal socket and a healthy root, which usually was not kept out of the mouth longer than fifteen or twenty minutes, and he believed that if success could be expected in such cases it was preferable to the implantation of teeth in artificial sockets, when the tooth, in some instances, had been out of the mouth for months, or even years.

All the teeth and roots which the essayist had replanted had resulted in failures, remaining in the mouth from eleven months to five years, but not in a single instance had he observed a new formation of bone around any of the roots. They were always eroded and showed signs of absorption, especially of the cementum. Their final appearance was analogous to that of partially absorbed temporary teeth. If, therefore, new bone was formed around implanted teeth, it was against the usual order of things. He believed the assertion that it is so formed had not been proven. Dr. Weld, therefore, believed the pathology of Dr. Younger false, and the practice of implanting teeth in artificial sockets erroneous. He believed the firmness of implanted and replanted teeth to arise from the fibres of the pericementum penetrating the canaliculi of the alveolus, and thereby giving the tooth a kind of mechanical attachment. Both implanted and replanted teeth he regarded as foreign bodies, which nature in time will try to throw out by means of an inflammatory action, in which osteoclasts (myloplaxes) are formed; these absorb the root and produce the characteristic bay-like excavations. The essayist then spoke of living and dead tissues and cells, and also of the late Dr. Austin Flint's predictions, that many things which at present appear to be impossible, will, in the future, be accomplished, but replantation and implantation of teeth with our present methods he regarded an absolute failure.

Dr. C. Heitzmann congratulated the reader of the paper for the honesty and truthfulness with which he admitted his failures in replanting teeth. He, however, would blame Dr. Weld for not having experimented on animals, that he might demonstrate the manner in which replanted teeth become fixed in the socket. There is something far superior to any quoted authority, and that is personal experience and demonstration. The idea of Dr. Sudduth, that connective tissue-fibres grow into the empty canaliculi of the nascent corpuscles is not tenable, for it would mean about the same as to maintain that an arm of a man could grow into a button-hole. Recently, it had been asserted by a French investigator that pieces of sponge, nay of India rubber, if introduced into living tissues, would become vitalized and produce blood and blood-vessels. Dr. Heitzmann ridiculed such an idea, still more its approval by one of our leading medical papers. The manner of the fixation of dead bodies is very probably this: the surrounding tissue, owing to a per-

sistent irritation, first swells and afterward becomes augmented, hypertrophied. From this hypertrophied tissue grow offshoots into the foreign body, that first becomes chemically altered, liquefied, or absorbed, and this is the source of blood-vessels in foreign bodies. The process is the same as the absorption of an ivory stick driven into living bone-tissue in the experiments of Billroth, performed many years ago.

Dead roots of dead teeth (and fifteen to twenty minutes out of the mouth seem to be enough to deprive teeth of their life) are foreign bodies, and are absorbed after several years, becoming loose. Dr. Weld has thus anticipated the interesting experiments of Dr. Younger, and it is highly probable that the latter gentleman, after five years, will have to acknowledge exactly the same failures that Dr. Weld has reported to-night.

Dr. F. Y. Clark did not agree with Drs. Weld and Heitzmann, for facts sometimes upset theories, and said he had replanted many teeth, some of which had been out of the mouth for three hours and more, and most of them had proved successful. They remained in the mouth from five to twenty-five years.

Dr. Younger had met with success, and this induced him to bring the matter before the profession. His theory, he acknowledged, might not be correct, but he based it upon his success. The oldest case of implantation was done seventeen months ago, and it was yet in good condition. He had replanted teeth four and five years ago. The question of the permanency of the operation could be settled in two or three years, but he was confident of success. As a disinfectant, he employs a solution of corrosive sublimate, one part of the salt to one thousand of water.

Dr. Wm. H. Atkinson thanked both essayists for their papers, and expressed satisfaction with the terminology of Prof. Pierce. Dr. Weld, he believed, had done a great deal of good, and although he did not agree with him in his conclusion, he yet thought it detestible to ridicule anyone for expressing opinions with which we do not agree. With regard to the operations in question, he would endorse Dr. Younger. Judging from the case of the lady whom he had seen at the meeting of the Odontological Society, he believed the operation would be successful.

Dr. J. F. P. Hodson moved a vote of thanks to Prof. C. N. Pierce, which was unanimously carried.

Editorial.

MEDICINE AND DENTISTRY.

The address of Dr. Kingsley, printed in this number, will undoubtedly call out protests from many quarters. In accepting it for publication, it will, of course, be understood that neither the editor nor the publishers are committed to its propositions. Indeed, a standing notice at the commencement of each number expressly states this of any accepted article. But we deem it the duty of a journal which aims to reflect the opinions and actions of any particular body of men to let both sides of any vital question be heard, provided it has two sides. The question of the relation of dentistry to medicine is by no means a novel one, for it has periodically convulsed some part of our number ever since the early days of Harris and Bond. The same arguments on both sides have been again and again urged, only to be met with the same counter-statements. It is time that the relative status should be determined, and there is no better way to accomplish this than through a temperate discussion of the matter, which shall assist every dentist in deciding for himself, and shall qualify him to give an intelligent vote and voice in settling the future policy of his profession.

It should be remembered that dentistry in America occupies an anomalous position. Whether wisely or not, and whether for the ultimate best interests of dentistry or not, the founders of our modern practice had no alternative, if educated and thoroughly equipped members were to be received, except in the establishment of segregated schools, and the conferring of a distinct diploma. This cut us off from medicine, for no one will for a moment imagine that the mother profession could acknowledge any diploma save her own, or recognize any school as competent to confer that diploma save regularly constituted medical ones, teaching the whole science of medicine. In no other country does this anomaly exist. In most of the European nations, until within a recent time, to become a fully recognized and approved dentist, a complete medical training was necessary. Now, in most of them, a special curriculum of dental study has been established, and the dentist recognized by medicine is not required to graduate in general surgery or obstetrics.

In America, the tendency is toward a higher education in dentistry, and since the peculiar course of some of our separate schools in

cheapening the dental degree and conferring it upon doubtful candidates, foreigners especially, there has been a deepening feeling in favor of a degree that has not been, in a measure, tainted by unworthy men. Years ago, we drew upon ourself the censure of some of our separate schools, by the statement that, in our opinion, the tendency of the times was toward the education of dentists in medical schools with special dental departments. It was a simple, bald statement of what we believed to be a fact, whether of good or evil import. The course of the dentists in other countries in securing the establishment of dental professorships in the universities, and the sending of dental students to those institutions, has proved that we were correct.

In America we have arrived at the parting of the ways. Shall we, in the future, endeavor to draw yet closer the bond which unites us to the mother profession, or shall we strike out an independent course, cut ourselves adrift from medicine and burn our bridges behind us? It is time that a future policy be marked out, and we enter upon an intelligently resolved course of action. This can only be determined by calm and dispassionate debate. It is not the part of wisdom to appeal to prejudice, nor to allow our passions to dominate our action. The disputant who appeals to personal bias, or who harbors unworthy and ulterior motives, should be allowed no voice in our discussions. Hard words only provoke hard words in return. Our opponents are not half as bad men as we usually picture them.

It is not to be supposed that this is a question of the existence of our separate schools. Their immediate and unconditional abolition, even were it possible, would be a backward step. Neither is it the diploma of D. D. S. *versus* that of M. D. This question need not enter into the consideration of the case. In England, where the relations of dentistry and medicine are so close, the separate degree of Licentiate of Dental Surgery (L. D. S.) has been established, but it emanates from a medical source, and the qualified dentist is amenable to a medical tribunal. In Germany, the approbated dentist derives his authority to practice from a medical court. It is not, perhaps, generally known that, in one State of our Union—Alabama—long before the war, an enactment placed dentistry directly under the control of medicine, and gave to medical authorities the sole right to license dentists to practice. The gulf which separates

the two is not now a wide one, and it may be bridged over or irreparably extended. The question to be decided is, whether we shall, by precipitate action, sever all ties, or endeavor to get into yet closer relationship with medicine. We cannot occupy the anomalous position of neither actually belonging to it or being separated from it.

There is one thing of which we are thoroughly convinced. This is no time for antagonizing the Medical Congress which is to meet in Washington this year. Every sentiment, whether of patriotism or professional pride, demands that factional feeling should be suppressed. There are dentists who, for reasons of their own, decline to take any part in the dental section of that meeting. That is a matter for their own judgment to decide. No man can impugn their motives, nor call in question their honesty and sincerity in such declination, and the few who have ventured to criticise the calm decisions of those who do not choose to join in the movement for the establishment of a dental section have usually been sternly rebuked by their own friends. Any factional course by those who are not identified with the section should be frowned down. No matter what may be thought by any one of the advisability of that meeting, it would be despicable to attempt to bring about a failure through seditious action. We do not mean to intimate that such a thing is contemplated, for we are certain that it is not. But the attempt at the present time to organize an International Dental Congress would, without doubt, be so interpreted, and hence we believe this to be a most unfortunate time for the agitation of that question. Let each do what he consistently can, and what his own sense of right prompts him to do for the success of the International Meeting of 1887, and after that it will be quite time enough to consider the propriety of a Dental Congress.

IMPLANTATION.

In the number for November, 1886, we gave an account of a case of implantation performed in this city by Dr. W. J. Younger. Our readers will, perhaps, remember that the operation was in some respects extraordinary, the implanted tooth having been selected from a receptacle for extracted teeth, where it had lain for some years, the exact date of its removal not being known. It has been under observation since its insertion, and we now have to report

that it still remains in a comfortable condition, and that no symptoms of irritation or inflammation have manifested themselves. It has not, however, become as firm as the other teeth, and, so far as we can observe, there has been no osseous deposition about it. It was not ligated nor held in position by any external appliance, but simply left to chance and the tender mercies of mother nature, and it remains about as it was when inserted. Our impression is that the tooth is tolerated, rather than adopted into the dental family. We have not prejudiced the chances for final success by rude attempts to see whether anything like a firm connection has been established, and therefore cannot positively determine its exact condition. It is apparently quite as firm as is a tooth in a rather advanced state of pericemental inflammation, but there is no soreness or pain about it.

We are impressed with the conviction that, while the operation for its implantation was skillfully performed, the tooth was not given a fair chance. To simply make a hole and insert a foreign tooth is not a scientific operation, unless all the means to secure the desired result are exhausted. To submit such a case to all the violence which is inseparable from every day use, and to place about it no safeguards against accident, seem to us an invitation to defeat. A freshly implanted tree cannot grow if it be subjected to constant movements of its roots, nor can nature produce new granulations about an organ that is not allowed rest. This is an axiom in pathological science. A transplanted or a replanted root demands protection from the constant action of the oral muscles and the violent assaults that must accompany mastication. When this is not given, if even temporary success be secured it is done despite the forbidding conditions. If permanency is to be attained in such cases, everything that will contribute to a favoring condition should be done, and the immovability of the implanted tooth should first of all be secured. Systemic treatment may be required, and if this be not attended to the continued tenure of the case will be extremely problematical, and it will become a victim to the first unfavoring complication which arises.

A careful study of the excellent paper in this number by Dr. Miller, will throw light upon the question. His experiments, as there detailed, are very instructive, for they are absolute demonstrations and not speculative hypotheses.

PERSONAL.

The editor of this journal desires gratefully to acknowledge the many courtesies extended to him during a late visit to the Central Dental Association of Northern New Jersey. Differences have arisen in the past, but he trusts that in the future they will know him better, as he certainly will them, and that the personal acquaintanceship formed will afford the members half the pleasure it does him.

The society is an active and energetic one, and its influence in elevating the general professional tone in the State has been very marked. Of the intelligence and knowledge usually displayed in the papers and discussions, our readers are competent to judge, for we have before now published much valuable matter from the reports of the society, and are promised much more in the future.

ANNIVERSARY MEETING.

We publish in this number the very comprehensive programme adopted for the celebration of the eighteenth birth-day of the First District Dental Society. It will be seen that great preparations have been made, and a rare time may be anticipated. The Executive Committee desire us to say that this official programme is printed in the INDEPENDENT PRACTITIONER expressly for the benefit of those whose names are not in their possession. The meeting is open to all practicing dentists, and a cordial invitation is extended to every one. Any practitioner who may not receive a formal card will please consider this notice a personal summons to be present and avail himself of all the privileges of the meeting.

RECEIPTS.

It is not usually convenient for us to send receipts for remittances on account of subscriptions by letter mail. They will be enclosed in the next number of the journal sent to the remitter. If, however, any subscriber desires his receipt transmitted at once, he should enclose a stamp for postage. Bills for 1887 will be sent out with the February number.

BIBLIOGRAPHICAL.

A PRACTICAL TREATISE ON MECHANICAL DENTISTRY. By JOS. RICHARDSON, M. D., D. D. S. Fourth Edition: Revised and Enlarged, with four hundred and fifty-eight illustrations. Philadelphia: P. Blakiston, Son & Co. 1886.

For more than a quarter of a century Richardson's Mechanical Dentistry has been the standard text-book in its appropriate field.

More than one generation of dentists has drawn wisdom from its study, and many disputed points in mechanics have been decided by a reference to this acknowledged authority. But mechanical dentistry has made great advances of late, and a text-book that gives only the methods of but a very few years since is antiquated. Hence arose the necessity for a thorough revision of Richardson, and the work, as evidenced by the fourth edition, appears to have been well done. Since the earlier editions were issued entirely new methods of inserting artificial teeth have been devised, and the scope of dental mechanics has been immensely extended. It would be quite impossible in a book of this magnitude to present all the details of all the different kinds of work that have been proposed, but the author has, with rare good judgment, selected the methods which give the best results, and described them with sufficient exactness to serve as a guide to any intelligent man. In crown-work, for example, nearly thirty different methods are given. This does not cover all that has been devised, for the modifications are almost endless, but it includes all the principles involved, and is surely sufficient.

We are glad that the author persists in the use of the old and expressive term "Mechanical" in contradistinction to that modern affectation "Prosthetic." It savors of the day when a dentist was obliged to be a thorough *mechanic* in order to succeed; when the modern professional dilettanteism of the prosthetic dentist, who puts his cases into the hands of a skilled mechanic for the accomplishment of the work which he himself is too often incompetent to do, was a thing unheard of, and every capable dentist was competent to pursue every part of his profession.

We can commend the new edition of Richardson as the most complete work of the kind now before the profession.

INDEX TO THE PERIODICAL LITERATURE OF DENTAL SCIENCE AND ART, AS PRESENTED IN THE ENGLISH LANGUAGE. By J. TAFT, M. D., D. D. S. Philadelphia: P. Blakiston, Son & Co. 1886.

Dr. Taft has, for all his active life, been identified with our professional literature, and there is, perhaps, no one who is better qualified to prepare an index to the periodical literature of dentistry than is he. At this day the most valuable essays upon subjects connected with dental practice are published in our journals, and he who depends solely upon text-books for his knowledge will not be

thoroughly informed. Yet the articles upon any given subject are so buried up among many others that it has hitherto been impossible to collect the literature when its examination was desired. For years the editor of this journal has kept an *Index Rerum*, but has found it quite out of the question to note all that is of import. The work under notice is intended to supply the long-felt want of an index to our periodical literature, and it will prove of great benefit to any dentist who will study it. It is not absolutely complete, and there are some papers which we think should have been noted, but for which we have searched in vain. This may, however, be the result of a rather arbitrary system of indexing the titles. Sometimes the heads of articles are not sufficiently expressive of their scope, and sometimes they are much too long for insertion entire. In this case the titles must either be somewhat changed or abridged, and it is in these changes that confusion may, at times, be detected.

There are other papers indexed which we think scarcely worthy a place in our permanent literature—papers which contain much that is false and more that is foolish. But it would be difficult to so draw the line as to meet all objections, and the work, as a whole, will prove indispensable to every one who is interested in dental literature.

The Dental Review. Published Monthly for the Dental Review Company, by W. T. Keener, 96 Washington St., Chicago, Ill. $2.50 per annum.

We are in receipt of the initial number of the new dental journal announced in our last issue. It is a handsomely printed magazine of 56 pages, and bids fair to occupy a prominent place in our literature. The leading article is an illustrated paper, having for its title "The Periosteum and Peridental Membrane," by G. V. Black, M. D., D. D. S. Dr. Black is well known as one of our best original investigators, and his paper is an important contribution to our professional knowledge. It should be carefully read by every thoughtful dentist. There is also an excellent article by Dr. Geo. H. Cushing, upon "The Germ Theory in its Relation to Daily Practice." There are some rather meagre reports of societies, with correspondence, news-items, etc. The editorials are of quite a slashing character, and give evidence of a fearless if not a reckless hand at the helm. Altogether, the number is a good one, and if the same standard is adhered to *The Review* will not probably lack support.

TRANSACTIONS OF THE TEXAS STATE MEDICAL ASSOCIATION. Eighteenth Annual Session, held at Dallas, Texas, April, 1886.

This is a ponderous volume of nearly 700 pages, handsomely bound and printed. It is one of the most complete volumes of the kind that we have seen, and in the appearance of its transactions and the fullness of the reports, the Texas State Medical Society holds an easy lead. Much of the credit for such a beautiful volume is undoubtedly due to Dr. F. E. Daniel, the secretary of the society, and the editor and publisher of *Daniel's Medical Journal.*

THE PHYSICIAN'S VISITING LIST FOR 1887. Philadelphia: P. Blakiston, Son & Co.

This is the thirty-sixth year of the publication of this little volume. Besides being a visiting list, it contains a mass of information concerning doses, poisons, remedies, etc., that make it of great value to every one who practices in any field of medicine.

First Annual Report of the State Board of Health and Vital Statistics of Pennsylvania for the year 1885.

On the Transplantation of the Eye of a Rabbit. By LUCIEN HOWE, M. D.

The Surgery of the Pancreas as Based upon Experiments and Clinical Researches. By. N. SENN, M. D. Reprinted from the Transactions of the American Surgical Association.

Surgical Notes from the Case Book of a General Practitioner. By WILLIAM C. WILE, M. D. Reprinted from the *New England Medical Monthly.*

Inter-State Notification; as demonstrated in the history of Yellow Fever, at Biloxi, Miss.

Address on Relation of Quarantine to Shipping Interests. By JOSEPH HOLT, M. D.

The Recording of Cases. By LUCIEN HOWE, M. D.

Four Cases of Extra-Uterine Pregnancy. By MATTHEW D. MANN, M. D. Reprinted from *The Medical News.*

Method in Medical Study. By CHARLES H. MAY, M. D. Reprinted from *The New York Medical Journal.*

Dr. Thomas Taylor's Reply to "Science." Relating to the Crystals of Butter, Animal Fats and Oleomargarine.

Notices of other books and pamphlets are unavoidably postponed till another number.

Current News and Opinion.

EIGHTEENTH ANNIVERSARY OF THE FIRST DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK.

OFFICIAL PROGRAMME.

Monday Evening, January 17, 1887.

Prayer .. ..Brady E. Backus, D. D., New York.
Address of Welcome..... .....Dr. Wm. Carr, New York.
Response..... .....Dr. J. Taft, Cincinnati, Ohio.

PAPER.

James Truman, D. D. S., Philadelphia. Professor of Dental Pathology, Therapeutics and Materia Medica, University of Pennsylvania. Subject: "The Rational Basis of Practice."

Tuesday Evening, January 18*th.*

PAPERS.

Norman W. Kingsley, D. D. S., New York. Subject: "Critical Essay on Treatment of the Irregularities of the Teeth."

J. Rollo Knapp, D D. S , New Orleans, La. Subject: "Crown and Bridge-Work."

During the Anniversary, short and interesting Papers will be read by the following gentlemen :

Frank French, M D. S., Rochester, N. Y. Subject: "What caused it ?"

A. P. Southwick, M. D. S., Buffalo, N. Y. Subject: "Imperfections in Vulcanite Work."

T. D. Shumway, D. D. S., Boston, Mass. Subject: "A Monograph—Science and Dentistry."

A. M. Dudley, D. D. S., Salem, Mass. Subject: "Dentistry as Practiced by the Native Dentists of China and Japan" (Illustrated.)

On Monday and Tuesday evenings, Dr. J. Rollo Knapp will exhibit his Electric Light for Illuminating the Oral Cavity.

CLINICS.

Clinics will be held at the New York College of Dentistry, Second Avenue and 23d Street. Clinics commence at 10 A. M. and 2 P. M. The names of the Clinical Operators will be announced the previous evening, as the committee desire *them to select their day and hour.*

Tuesday, January 18*th,* 10 *A. M.*

Sophy E. Feltwell, D. D. S., Pittsburgh, Pa. Artificial Crown.

J. Rollo Knapp, D. D. S., New Orleans, La. Crown and Bridge-Work. Carbon and Nitrous-Oxide Blow Pipe.

E. Parmly Brown, D. D. S., Flushing, Long Island. Porcelain Crown and Bridge-Work. Electric Mallet, etc., etc.

W. W. Evans, D. D. S., Washington, D. C. Artificial Work. Dylonite lined with Aluminum. Operating with Engine-Plugger. Contour and difficult Buccal Cavities.

D. A. Williams, D. D. S., Supt. Mechanical Dept. N. Y. College of Dentistry. Modified Interdental Splint.

Truman W. Brophy, M. D , D. D. S , Professor of Oral Surgery, Chicago College of Dental Surgery, will practically demonstrate the use of his Continuous Band Matrices.

W. G. A. Bonwill, D. D. S,, Philadelphia, Pa. Clinical demonstration of the use of Amalgams.

A. W. Harlan, M. D , D. D. S., Prof of Materia Medica and Therapeutics, Chicago College of Dental Surgery. Treatment of Pyorrhœa Alveolaris.

H. C. Register, M. D., Philadelphia, Pa. Uses of Compressed Air in Dental Practice, and Atomization—A means for Cleansing the Mouth and Teeth.

E. T. Starr, D. D. S., Philadelphia, Pa. Detachable Bridge-Work, etc., etc. Covering Plates with Gold Foil.

S. H. Guilford, A M., D. D. S., Philadelphia, Pa , Professor of Operative and Prosthetic Dentistry, Philadelphia Dental College and Hospital of Oral Surgery, will explain and demonstrate the Use of his Matrices.

Wm. Crenshaw, D. D. S., Atlanta, Ga Contouring Bicuspids and Molars, using Electric Mallets and Perry's Separators.

Edwin T. Darby, M D , D D. S , Philadelphia, Pa , Prof. of Operative Dentistry and Dental Histology, University of Pennsylvania, will clinic Subject not given

C. F. W. Bodecker, M. D. S , D D. S , New York City, will demonstrate the Preserving, Cutting and Mounting of Microscopical Specimens.

R Walter Starr, D D. S., Philadelphia, Pa , will show the removal of a live pulp and nerve with Dental Engine drill, using an obtunder.

John H. Meyer, D. D. S., New York, will put through a Continuous Gum Case, from the Impression

M. L. Rhein, M. D., D. D. S , New York. Herbst Method in Conjunction with Electric Mallet. Herbst Method of making Loop-Matrices of German Silver.

C. A. Timme, D. D. S , Hoboken, N. J. Herbst Method, using Wolrab Foil.

W. Irving Thayer, M. D., D. D. S., Brooklyn, N. Y., will demonstrate the Use of his Trip-Hammer Plugger.

Dr. F. P. Geran, Brooklyn, N. Y. Herbst Method, etc., etc.

W. H. Atkinson, M D., D. D. S , New York. Implantation.

Olga Neymann, D. D. S., New York. Gold Filling,

Frank Abbott, M. D., New York., Prof. of Operative Dentistry in the N. Y. College of Dentistry, will demonstrate his New Automatic Mallet, with Back Action Attachment.

Dr. Stafford G Perry, New York, will demonstrate the Perry Separator.

H. A. Parr, D. D. S., New York, Specialties in Bridge and Crown Work.

Dr. George F. Reese, Brooklyn, N. Y., will practically demonstrate the use of Reese's Metal in the different branches of Dentistry.

J. N. Farrar, M. D., D. D. S., New York, will explain Regulating Devices constructed to act upon the principle of Intermittent Force.

Frank D. Gardiner, D. D. S , Philadelphia, Pa. Electric Mallet—Practical demonstration.

The S. S. White Dental Manufacturing Company has kindly consented to exhibit all their new devices and products.

Dentists are invited to bring Specimens, Models, New Appliances, Instruments, etc.

Special arrangements have been made with Messrs. Mathews & Piersons, proprietors of the Sturtevant House, Broadway and 29th Street, where full board can be obtained for $3 per day; lodgings $1 per night.

For further information apply to

Dr. W. W. Walker, 67 W. 9th St., New York,
Chairman Executive Committee.

"FIRST DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK."

In the December number of the Independent Practitioner, on page 712, appears a condensed report of a special meeting of this society, called to hear a paper from Dr. N. W. Kingsley, entitled "Dentistry Not a Specialty of Medicine."

After the paper was read and discussed by members present, resolutions were passed endorsing the paper, and a committee appointed to consider the establishment of an International Dental Congress in this country "at as early a date as arrangements can be made," etc.

I was not able to be present on the occasion, but find my name on the committee appointed at the meeting, and while I appreciate the honor, I certainly could not favor the convening of a Dental Congress at "an early date," as arrangements have already been made for the working of a dental section in the forthcoming Medical Congress, and the new movement suggested would tend to detract from the interest which dentists should feel for the successful presentation of their claims on the occasion. Aside from this I see no objection to the establishment of an International Dental Congress, which like our National Association might result in great benefit to our specialty.

I must, however, take exception to the idea that "dentistry is not a specialty of medicine," and can hardly imagine how dentists of extended experience can consider the duties and requirements of their specialty at the present day as outside the pale of medical recognition. Whether such is the case or not, facts remain the same, and "facts are stubborn things." Those who are familiar with the details of dental practice, and can realize the vast amount of physical suffering relieved by its ministrations, can, if it affords them any degree of morbid satisfaction, declare that dentistry has "no recognition!"

Well, suppose they do? When dentists, *as a body*, become thoroughly fitted for the great work before them, they need have no fear that their labors will not be appreciated, nor that their specialty will fail to obtain such "recognition" as their beneficiary services to the human family entitle them to receive.

C. E. Francis.

FIRST DISTRICT DENTAL SOCIETY.

I noticed in the Dec. Number of the INDEPENDENT PRACTITIONER, page 712, under the head of "Current News and Opinion," an article purporting to be a report of a special meeting of the First District Dental Society of the State of New York, held Nov. 19th. This meeting was called to hear Dr. Kingsley read a paper entitled "Dentistry Not a Specialty in Medicine." The report states that this was the largest and most enthusiastic meeting ever held by this society, and after the sentiments advanced had been warmly endorsed by several members, a series of resolutions, offered by Dr. Dwinelle, were adopted without a dissenting voice.

In reading the report referred to, the dental profession would naturally infer that this society fully endorsed these resolutions, which is not a fact. The true state of affairs is as follows: After the resolutions were offered and passed, the President appointed the committee of ten, referred to, when Dr. W. W. Walker stated that, as this was a special meeting, the resolutions were out of order, for they could be adopted only at a regular meeting. After some discussion the President decided that they were not in order. An appeal was then taken from his decision, but the society sustained him. At the following regular meeting of the society, the minutes and resolutions of the special meeting were laid upon the table. It is therefore evident that, as yet, the First District Dental Society has taken no action in the matter.

A MEMBER.

DENTAL SUGGESTIONS.

RECUTTING ENGINE BURS.—Use a No. 2 safe-sided, fine, single-cut separating file, ground (on a corundum stone) to a feather edge from the safe or uncut side, at an angle of about 40 degrees. The temper of the bur may be drawn by holding the bur end in a coal fire till a dull red heat is produced, then dropping it on the hot part of the stove to cool slowly. If a pair of 5 or 6 inch focal distance (No. 5 or 6) spectacles be used, and the bur be placed in their focus, it will appear like the bur of a coffee mill, and the cutting with the prepared file can be easily done. For tempering, a small alcohol lamp may be used. The outer surface of the flame only produces heat. To prevent burning the steel point, the shank needs some heating before the bur is raised to the proper temperature. By a little dexterity the bulb part only needs to be heated to a cherry red, and instantly dropped into a small vessel filled with water propped up quite close to the flame. The immersion must, in small instruments, be instantaneous, or the temper required will not be obtained. No drawing of temper is required. Sandpapering, to brighten the shanks, makes them ready for use.

Skirt-braid loosely twisted before joining the ends, makes an excellent engine cord.

Emery cloth may be cut into strips for polishing fillings with a pair of dime cast iron shears, which may be sharpened on corundum stones. Their hardness makes them really better than the high priced article.

Thin slices of cork make excellent coverings for exposed pulps. They are non-conductors of heat and cold, durable and pliable.

I have heard intelligent physicians and surgeons condemn the use of the tooth brush, on the ground that it wears away the enamel of the teeth. When enamel is soft and eroded it needs removal to save the parts underneath. Good enamel will not be worn away by the brush.

In pivoting teeth, amalgam has been recommended to close the joint between the root and the porcelain. To be useful, amalgam should be thoroughly incorporated into a uniform mass just where it is needed, which in setting pivot teeth cannot usually be done When it is not well worked, it will be a broken, porous mass, a great deal more deleterious than the vilest of dirt.

JOHN D. WINGATE, D. D. S.

LOUISIANA STATE DENTAL SOCIETY.

The annual meeting of the Louisiana State Dental Association will be held in Tulane Hall, at New Orleans, La , on the 23d, 24th and 25th of Feb. 1887.

A cordial invitation is extended to the members of the profession throughout the States to attend. No efforts will be spared to make our guests welcome and comfortable, and the meeting interesting and profitable. An opportunity to witness the Mardi-Gras festivities will be afforded those who come, and favorable R. R. rates may be had at that time. Mardi-Gras takes place the day before the meeting. For further information address

P. J. FRIEDRICHS, Ch'm. Ex. Com.,
155 Carondelet St., New Orleans, La.

MASSACHUSETTS DENTAL SOCIETY.

The twenty-second annual meeting of this Society was held in the Y. M C. A. Building, Boston, Dec. 9 and 10, 1886. The annual address was by Dr. Thos. Fillebrown. Subject: "The Influence of Culture upon Professional Skill." The officers elected were:

President—Dr. E. B. Hitchcock, Newton.
First Vice-President—Dr. H. C. Merriam, Boston.
Second Vice-President—Dr. G. A. Gerry, Lowell.
Secretary—Dr. Geo. F. Eames, Boston.
Treasurer—Dr. E. Page, Charlestown.
Librarian—Dr. R. R. Andrews, Cambridge.
Executive Committee—Dr. S G. Stevens, Boston; Dr. D. M. Clapp, Boston; Dr. E E. Hopkins, Boston; Dr. W. E Page, Boston; Dr. A. H. Gilson, Boston.

G. F. EAMES, Secretary, 62 Trinity Terrace, Boston.

CHICAGO DENTAL SOCIETY.

At a meeting of the Chicago Dental Society, held Dec. 7, 1886, the resolutions offered and adopted by the "First District Dental Society of the State of New York," relative to the formation of an "International Dental Congress," were endorsed by the society, and the following committee has been appointed to co-operate with the committee from the First District Dental Society: Drs. T. W. Brophy, Geo. H. Cushing, A. W. Harlan, E. D. Swain, C. F. Matteson, J. G. Reid, W. B. Ames, J. A. Swasey, N. Nelson C. N. Johnson.

J. G. REID, Rec. Sec.

Relation of Medical Men to Dental Quackery.—We have had a matter of professional etiquette referred to us lately. A medical man writes to us saying that he was called in upon two occasions to administer chloroform to patients by a man who practices dentistry, but who, he has since been informed, is not registered, and our correspondent wishes to know what course he should pursue in future. There can be only one possible answer: He should absolutely refuse to attend. To associate in any way with one who is liable to prosecution, should he ever call himself a dentist and yet practice, must bring discredit not only upon himself, but upon the medical profession generally. We will go further, and say that no medical man should allow his name to be connected in any way with dental quackery or advertisement. Dental specialists have for years worked hard, and with success, to raise their professional and social status, and they look to their parent—the medical profession—to help them by not encouraging irregular dental practitioners.—*Lancet.*

Miss Kate Field tells the following illustration of one of the benefits of cremation. A lady, visiting some friends, neglected to bring her tooth powder. Looking about her bed chamber she noticed an elegant vase. On removing the cover, she found a gray calcareous powder. This she regarded as dentifrice, and proceeded to avail herself of the discovery, finding it very satisfactory. The next day she mentioned the fact to her hostess, apologizing for making free with her tooth powder The countenances of the family expressed various emotions, which at last found vent in the gasp of one of the daughters: "Why, that's Aunty." Thus, as a tooth powder, the ashes of the cremated are a success.

—*The American Lancet.*

The Minneapolis Dental Society has issued a very attractive programme for the year. Its officers are:

President—Dr. J. H. Martindale.
Vice-President—Dr. F. H. Brimmer.
Secretary—Dr. J W. Penberthy.
Treasurer—Dr. Loughridge.
Librarian—Dr. C. M. Bailey.
Executive Committee—Drs. E. H. Angle, H. A. Knight, and E. B. Dillingham.
Membership Committee—Drs. M. G. Jenison, C. M Bailey, and Wm. Jermain.

The Illinois State Dental Society, at its last meeting, appointed a committee to aid in the formation of district societies for the State. That committee now reports, and recommends that four local associations, to be called respectively, the Northern, Eastern, Western, and Southern societies, be formed, and they publish the names of a number of dentists in each district who have promised to sustain the local association. We may, therefore, look upon the thorough organization of the dentists of Illinois as a thing already accomplished.

In the last five years Billroth has performed operations on the stomach in thirty two cases, with nineteen fatal results. Out of fifteen gastrectomies for cancer, there were seven recoveries.—*Med. and Surg. Reporter.*

When it is desired to solder a piece that has been soldered in another place, most gold workers consider it necessary to use a softer solder, which shall flow at a lower temperature than that first used, that the unsoldering of the previous work may be avoided. This is needless, if the solder used in the second case be placed in mercury until the surface is slightly amalgamated. If it be then used it will flow very readily, while the appearance of the finished piece is not injured, as the mercury is sublimated in the heating, leaving the solder as it originally was.

Tin and gold combined make an excellent filling. It may not be generally known that they unite, and in the course of time make a very hard alloy. If they be heated above the melting point of the tin, they will combine at once. Metallurgists know that tin and gold cannot be left in contact without great changes ensuing. If a bit of pure tin be placed upon a piece of gold plate and heated with the blow-pipe, it will go through the latter, leaving a hole. If the tin be melted in contact with gold, it will make the latter so brittle as to break upon slight pressure.

The resolutions concerning the formation of an International Dental Congress, published in this journal last month, were primarily offered and adopted at a union convention of the Fifth, Sixth, Seventh and Eighth District Dental Societies, held in Rochester, in October last. The committee appointed at that time consisted of Dr. S. B. Palmer, of the Fifth; Dr. A. M. Holmes, of the Sixth; Dr. Frank French of the Seventh; and Dr. A. P. Southwick, of the Eighth District Society

C. T. Howard,
Rec. Sec.

The London Correspondent of the *N. Y. Times*, writes: "The American dentist has become almost as fixed an institution in England as the French hairdresser or the German waiter. There are probably two-score in London alone, commanding a patronage which would open the eyes of their professional brethren at home I think dentistry is probably the only thing in which Englishmen would unanimously concede American supremacy."

The late editor of the *London Lancet* requested that the *Lancet* should contain the following confession of his faith in connection with the notice of his death: "Feeling my deep responsibility to God for the position in which, in His Providence, He has placed me, I desire to testify to the comfort derived during my sickness from a lively faith in our Lord Jesus Christ, and that I die in the sure hope of a glorious resurrection."

The Journal of Cutaneous and Venereal Diseases will, with its January number, change its name to *The Journal of Cutaneous and Genito-Urinary Diseases*, and its scope will be broadened that much. At the same time it will be enlarged. Under the exceedingly able editorship of Prince A. Morrow, A. M., M. D., it has taken a high rank, and if it is to be improved yet more, there is no knowing where its onward march will stop.

THE PROFESSIONAL NOVEL, "Thurley Tighe," which has for two years been appearing as a kind of addendum to the *Dental Record*, of London, is at last brought to a close, all the good characters being married and happy. The story has for its author Felix Weiss, L D. S., whose name is well known in the dental literature of England, as the author of "Vernon Galbray," "The Crossing Sweeper," "Truth and Perseverance," etc., etc. "Thurley Tighe" will soon be published as a separate volume, by the Dental Manufacturing Co. of London.

IT IS SAID that Rome has a more bountiful supply of water than any other city in Europe, there being 591 litres in the twenty-four hours for each inhabitant. Next comes London with 300 litres for each inhabitant. Paris comes third, with 227 litres; then Naples, 200; then Berlin, with 140; sixth, Vienna with 100; and seventh, Turin with 98.—*Med. Rec.*

M. JAVAL, at the late Paris Ophthalmic Congress, reported a series of cases of dental disturbance cured by operating for glaucoma. That disturbances of the dental nerves would precipitate attacks of glaucoma has been well known, but the reverse has been less considered.

THE DENTAL PRACTITIONER, of Philadelphia, announces that the December number is the last which will be issued Henceforth there will be no excuse for the continuance of the practice of certain dental journals, to borrow largely from THE INDEPENDENT PRACTITIONER and then give credit to *The Dental Practitioner*.

SOZODONT. According to the *American Analyst*, this tooth-wash consists of soap, 5 parts; glycerine, 6 parts; spirits, 30 parts; water, 20 parts Flavored with several cheap oils, and colored. The accompanying tooth-powder is a mixture of orris root, chalk and magnesia

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RESEARCHES BY DR NEWTON, published in the *Medical News*, prove that milk warm from the cow, when placed in tight cans in a warm atmosphere, will so change as to develop poisonous ptomaines, sufficient to cause toxic symptoms in those using the milk.

DR. WEIR MITCHELL, of Philadelphia, is said to have written a second novel, Dr. W. A. Hammond, of New York, is the author of several novels. Medical novelists are on the increase —*Maryland Medical Journal.*

"WE ARE never afraid of the man who keeps his mouth open," says the shrewd Indian. A closed mouth indicates power not to be lightly esteemed.

"MRS. MULCAHEY, have you heard of the great rimidy for hydrophoby?" "No, faith And phat is it?" "Plasteur of Paris, sure."

THERE ARE 5,237 insane patients in New York City institutions.

THERE ARE but three free dispensaries in Paris.

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FOR 1886-1887.

NUMBER FIVE.

PUBLISHED JANUARY 1st, 1887.

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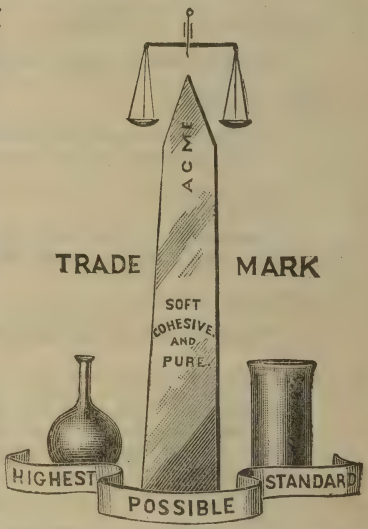

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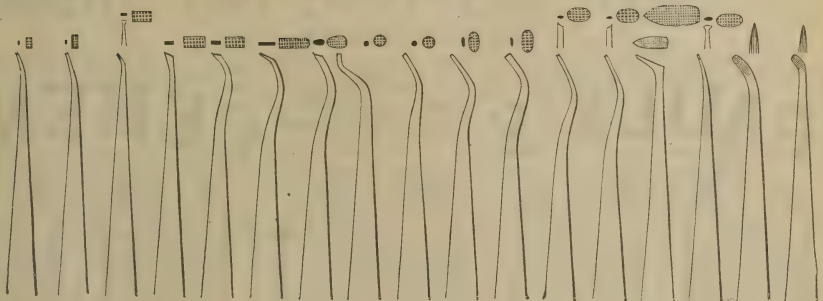

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As Now Made, is Slower in Setting, giving ample time for the slowest operator to manipulate it properly.

Gum Color Cement for making tight joints in vulcanite work. Diamond Cement has been used for this purpose for many years, and in order to supply the recent demand we are making a *better color*, and an article more suitable for this purpose than can generally be found in the market. Mix thin, drop into the joints, and pack at once.

The use of cements is not sufficiently inculcated. We use it as a rule when patients are not able to pay for large gold fillings, as a matter of economy, but the fact is it saves teeth that gold would not save. I have a case in mind. Teeth which were decaying rapidly *FIVE YEARS AGO*, I filled with Caulk's Diamond Cement, and they are now in good condition.—Dr. E. S. Chisholm, in *Transactions* of the *Alabama Dental Association for* 1886.

THE UNIVERSAL VERDICT IS THAT CAULK'S DIAMOND CEMENT IS THE BEST. A FAIR TRIAL WILL CONVINCE YOU.

CAULK'S PAR-EXCELLENCE ALLOY

This GOLD AND PLATINA ALLOY is manufactured on a NEW PRINCIPLE.

None better made. Saves Teeth where others fail.

With one exception, we were the first to manufacture Amalgam containing Gold and Platinum, although we did not call it such, simply our trade name, Par-Excellence Alloy, which fully expresses the superiority of this combination of metals over others. It is the result of a long series of experiments, and has been in constant use for nearly ten years. By our new method of manufacture there is no **guess work,** the molecular change is controlled, making each and every ingot always and absolutely alike in its properties.

Price in ⅓, ½ and I ounce packages, per ounce, $3.00; 2 ounces, $5.00.

CAULK'S WHITE ALLOY

Has been greatly improved. Costing more to produce it.

There is NOTHING EQUAL or Superior to it.

Is of a peculiar grayish-white color. When amalgamated in the hand it works with a soft and velvety feeling. It is very DENSE, and so malleable that it can be malleted with the greatest ease. Has been highly recommended in Combination Fillings of Gold and Amalgam. When properly manipulated with our PURIFIED MERCURY it will retain its color under all circumstances.

Price, ¼, ½, and I ounce Packages, per ounce, $4.00; 2 ounces, $7.00.

CAULK'S DIAMOND POINT STOPPING

AND GUTTA-PERCHA POINTS FOR FILLING ROOTS.

This form of gutta-percha, having been in the market for TEN years, has stood the greatest test of all—that of time. It is regarded as the best preparation of its kind for filling teeth in the world

The Stopping is put up in SEALED ENVELOPES, and the Pellets, Cylinders and Points in SEALED BOXES, each bearing a *fac-simile* of our signature.

Price, in ⅛, ¼, ½ and I ounce packages, per ounce, (reduced to) $2.00.

We make a specialty of manufacturing these materials for filling teeth.

Over Fifteen Thousand (15,000) Dentists are using these Materials throughout the civilized World. What better evidence do you wish of their Superiority and Excellence?

Publisher Caulk's Dental Annual for 1886-'87, No. V. Price, 50 Cents.

L. D. CAULK, Manufacturer and Proprietor, CAMDEN, DEL.

SOLD AT ALL DENTAL DEPOTS.

COGSWELL'S

Disk Carrier and Guard

MADE BY

CODMAN & SHURTLEFF,

167 Tremont Street, BOSTON, MASS.

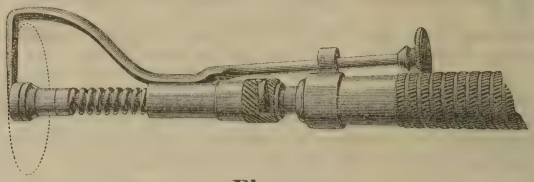


Fig. 214.

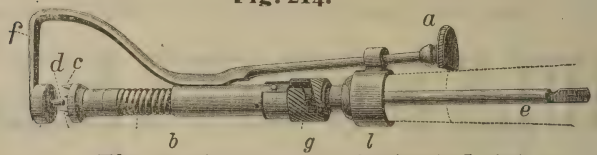


Fig. 214 A. **Patented Feb. 10, 1885.**

This invention will be found indispensable by every dentist who values time, as it will enable him to attach the much used Disk to the Engine Mandrel in a small fraction of the time required by other methods.

It is represented in the figures as connected to the Hand-piece. In Figure 214 the holding device is represented as closed, the outline of Disk being indicated by circle of broken lines. In Figure 214 A, it is shown as opened by slight pressure of the thumb or finger against the knob *a*, ready to receive the disk. Upon relaxing this pressure the spring *b* closes upon the disk, which is centered upon *d*, perforated by four hardened steel points, *cc*, and thus securely held ready for rotation. The carrier is attached to the Hand-piece by insertion of the Mandrel *e*. A friction ferule *l* overcomes slight tendency of bracket *f* to rotate, and enables the operator to retain the guard opposite that portion of the disk where it will most effectually guard cheek, tongue, or other part from injury, or, prevent interference with rubber dam. At *g* is a locking sleeve, employed only when in the use of stiff disks there is a tendency to overcome pressure of spring *b*, and permit loosening of disk.

The Carrier will receive disks of ⅞ inch diameter down to ¾ or even smaller. It may be rotated in either direction without loosening the disk, as occurs with the ordinary screw-held disk.

PRICE, $2.50.

We are prepared to supply the Disk Carrier and Guard to fit the S. S. W. Hand-pieces, Nos. 5 and 6, Hodge's and Bonwill's Improved, at this price. Other Hand-pieces, if sent us, will be fitted to order at the same price, or at a moderate additional charge. ***In ordering, state what Hand-piece is used.***

MESSRS. CODMAN & SHURTLEFF : BOSTON.

Gentlemen,—The new Disk Carrier, with guard, which I have fully tested, is very satisfactory in all respects. I prefer it to any other pattern now in the market.

ISAAC J. WETHERBEE, D. D. S., *Pres. B. D. C.*

From J. B. Coolidge, M.D., D.D.S., Professor of Clinical Dentistry, in Boston Dental College.

MESSRS. CODMAN & SHURTLEFF:—

The new Disk Carrier which you sent me is the best. It will very soon save its cost in the time required for changing the disk. The guard will be found of great use in protecting the cheek, tongue, and rubber dam from the action of the disk. I would recommend it to every Dentist.

J. B. COOLIDGE.

From J. A. Watling, D.D.S., Professor of Operative Dentistry, Michigan University.

MESSRS. CODMAN & SHURTLEFF,

167 Tremont Street, Boston, Mass.:

Dear Sirs,—Your Disk Carrier received. After several careful trials, I feel justified in recommending it to the profession as a very useful and valuable addition to a dentist's outfit.

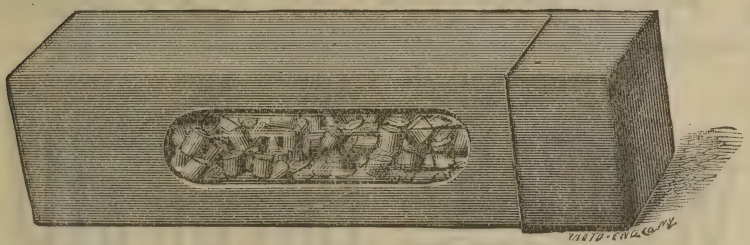
It is one of the best that I ever used. Is readily applied to the engine, and to replace the old disk with a new one requires but a few seconds.

The protector, while holding the disk firmly in place and being all that is necessary for the prevention of injury to the mouth, does not shut off the view of the filling to be finished.

It is indeed an instrument to be desired by all careful practitioners.

1-6-an-1 Respectfully, J. A. WATLING, D. D. S.

EXTRA PLIABLE DECIMAL GOLD ROLLS.



(This Engraving represents a Phial of size 1 of the above designated Gold, inclosed in a Box)

Gold Foil and Gold Rolls, per 1-10 ounce,	$3.00.	Per ounce, $28.00
Extra Pliable Decimal Gold Rolls, per 1-10 ounce,	3.50.	Per ½ ounce, 17.00
Untrimmed Foil, per 1-5 ounce book,		5.50
Ideal Cement, per package, with Pigments,		1.00
Rowan's Ideal Alloy, No. 1, per 1 oz. $5.00, 2 ozs. $9.00, 4 ozs.		16.00
Rowan's Ideal Alloy, No. 2, per 1 oz. $3.00, 2 ozs. $5.50, 4 ozs.,		10.00
Tin Foil (our make), very tough, per book,		.50

Try some of our "Ideal" Cement Filling and "Ideal" Alloy.

Appended are testimonials for our preparations of Gold from well-known gentlemen:

I have used the Rolled Gold of Edward Rowan & Co., and like it very much. I prefer high numbers—30, 60 and 120—for facility of adaptation to walls of cavities, capacity to bear high annealing and making solid work, I know no superior make.

W. H. ATKINSON,
October 23, 1882. 41 E. 9th Street, N. Y.

271 N. Eutaw Street. BALTIMORE, Md., June 5th, 1883.

GENTLEMEN—I have used nearly all of the last ounce of your "Extra Cohesive" Decimal Gold Foil No. 4, and it affords me pleasure to inform you that it has *proved* to be a *first-class article* in every respect. It is *cohesive* and *tough* in the *highest degree*, yet possessing *less harshness* than is usually found in cohesive foils. I cheerfully thus refer to it, and so long as you continue to make such foil, I want nothing better. Very respectfully,

JAS. H. HARRIS, M. D., D. D. S.

No. 100 Boylston Street. BOSTON, MASS., June 30, 1883.

SIRS—I have used your Rolled Gold for several years. When I wish to use *cohesive* gold, I prefer your No. 30 Rolled to any gold with which I am familiar. It is very tough, soft and cohesive. In short, pleasant and easy to work, and makes a compact, even and finished filling. Yours truly,

L. D. SHEPARD,
Late Professor of Operative Dentistry, Harvard University.

S. H. GUILFORD, A.M., D.D.S., (*Professor of Operative and Prosthetic Dentistry, Phila. Dental College,*) has permitted us to state that he uses and recommends our "Gold Rolls."

DR. H. J. MCKELLOPS, of St. Louis, writes us, under date September 16, 1884, "You may use my name in connection with your Gold with pleasure."

H. C. REGISTER, M. D., D. D. S., of Philadelphia, writes us, "You are permitted to use my name in recommending your Gold, as second to none in the world!"

CHAS. L. STEEL, M. D., D. D. S., of Richmond, Va. (*Demonstrator Operative Dentistry, University of Maryland*). DEAR SIRS—Your last ounce of Gold duly received, and, as usual, works superbly. I have used many makes of Cohesive Foil, but for some time past have confined myself to yours exclusively, as I find none other so near perfection.

A. H. FULLER, M. D., D. D. S. (*Professor of Operative Dentistry, Missouri Dental College*). Should you so desire you may state that I have been using your Gold for the past year or more, and find it first-class in every respect. Shall send you an order in a few days for more.

WM. CARR, M. D., 35 West 46th Street, New York, permits us to state that he endorses our Golds. He uses Nos. 3 and 4 soft; No. 60 Rolled; and Gold Rolls.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

REFERENCES FURNISHED ON REQUEST.

C. A. TIMME & CO. Importers of

CASH MUST ACCOMPANY THE ORDER.

COHESIVE, SOFT No

WOLRAB'S PURE CHEMICALLY

GOLD FOIL

C. A. TIMME & CO.

IMPORTERS of DENTISTS SPECIALTIES

SOLE AGENTS FOR THE U. S.

190 HUDSON ST. HOBOKEN N. J.

CASH OR MONTHLY PAYMENTS

Foil, $4.00 per ⅛ oz., $15.00 per ½ oz., $30.00 per 1 oz.

On orders of two ounces and more at a time a reduction of 50 cents per ounce will be given.

This gold is made in reference to the HERBST method of filling teeth with the engine. It has also proven a very desirable article for the *mallet* and *hand-pressure.*

We claim it to be superior to any other make for its peculiar *softness.* It easily adapts itself to the walls of the cavity, and when properly manipulated it makes a *solid* and *cohesive filling.* If it is to be used cohesively, a slight *warming over* the flame will have the desired result.

Very good reports have been received from prominent practitioners.

Timme's Imported German Phosphate Cement, per box, $1.00.

SEND FOR PRICE LIST OF TEETH FOR THIS BOOK.

CASH MUST ACCOMPANY THE ORDER.

1803

WOLRAB'S CELEBRATED GERMAN GOLD.

CHEMICALLY PURE

for the HERBST METHOD

MADE EXPRESSLY of filling TEETH

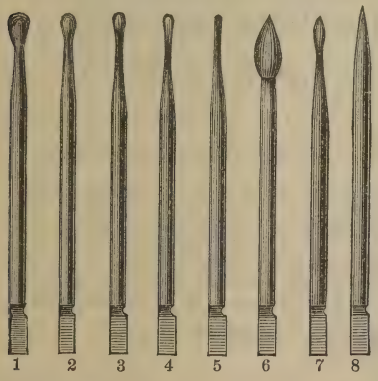
C. A. TIMME & Co. IMPORTERS OF DENTISTS SPECIALTIES

HUDSON St. HOBOKEN N.J.

SOLE AGENTS FOR THE U.S.

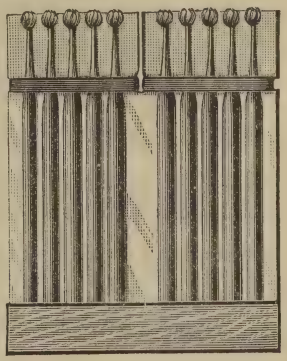
Cylinders, $4.50 per ⅛ oz., $17.00 per ½ oz., $34.00 per 1 oz.

Instruments for the Herbst Method



Made of Agate, per set, - - - $10.00
The same made of Steel, as shown in the cut, per set, - - - - - 4.00

Imported Burs, Stone Cut.



Unequaled in temper, arranged on wooden cards, per card of ten, - - - $ 3.00
In boxes of ten cards, - - - 25.00

AN-3-5-2.

HARDMAN'S WHITE ALLOY

Takes the place of gold for filling front, or any teeth.

PRICE, $3.00 PER OZ.

Test for Color—Place a button of Amalgam, that has one surface polished, into a solution of 40 to 60 grs. of sulphuret of Pottassa in 1 oz. of water. Let remain 24 to 48 hours.

Test for Leakage—Fill a small glass test tube with it, just as you would a cavity in a tooth, and drop it into a bottle containing an alcoholic solution of red aniline.

This Alloy Stands These, and Any Other Tests Deemed Requisite to Perfection.

HARDMAN'S SUPERIOR AMALGAM

Surpasses all others for strength and density of texture. Use it for Crown Work, in Molars, &c.

PRICE REDUCED TO $4.00 PER OZ.

Large discounts on both of these in quantities.

MADE AND FOR SALE BY

J. HARDMAN, MUSCATINE, IOWA.

If your depot does not keep them send to the proprietor for them.

8-4-AN-¼

DIBBLE'S WHITE AMALGAM

A Gold Alloy. $5.00 per ounce.

Manufactured only by

W. H. DIBBLE, MIDDLETOWN, CT.

For sale by S. S. WHITE DENTAL M'F'G CO., or sent by mail by the manufacturer.

ALSO MANUFACTURER OF THE DIBBLE PLUGGER.

THE FOLLOWING TESTIMONIALS ARE RESPECTFULLY OFFERED.

Dibble at present is ahead on Amalgam.
NEW YORK, Jan. 9, 1883. J. W. CLOWES, 667 Fifth Avenue.

I believe it to be the best article of the kind in use.
W. H. DWINELLE, M. D., 27 West 34th St., New York.

I take pleasure in recommending it as the best now known.
GEORGE H. PERINE, 74 West 50th St., New York.

Have used it three years, and it has given me better results than any other.
O. E. HILL, M. D. S., 160 Clinton St., Brooklyn, N. Y.

I am satisfied it is the best in use. I can recommend it to the profession.
C. E. GRAVES, 393 Jay Street, Brooklyn, N. Y.

It is the best I have ever used. MILES H. DODGE, 20 E. 33d St., New York.

$5.00 per oz. or 3 oz. for $12.50. Sent by Mail.

3-5-AN-½.

E. KEARSING'S

COHESIVE AND SOFT

GOLD FOIL,

Used by many of the prominent dentists in this country and abroad.

——ALSO EXTRA FINE——

TIN FOIL AND AMALGAM.

MR. E. KEARSING, *Dear Sir:*—After having used your gold foil for five years, I can say that it gives me better satisfaction than any other that I have used. For restorations and all work where I greatly depend upon cohesive qualities it never fails.

Yours truly, A. H. SCOFIELD, D. D. S.,
113 W. 47th St., New York City.
September 8, 1884.

MR. E. KEARSING:—After using your gold foil about five years with great satisfaction, I feel that I cannot get along without it. It is especially valuable for small cavities, and for fine work in approximal cases. Respectfully, J. N. FARRAR.

MR. E. KEARSING, *Dear Sir:*—After having used your gold, both soft and cohesive, for nearly five years, I find it has given me entire satisfaction in all cases.

Yours truly, J. BOND LITTIG, D. D. S,
113 W. 47th St., New York City
September 13, 1884.

Dear Sir:—After using your gold foil almost uninterruptedly for the last six years, I have no hesitation in stating that it stands without a rival for performing what are known as contour operations. It answers equally well for small fillings unannealed when properly manipulated. Very truly, H. C. LONGNECKER.

FLUSHING, L. I., Sept. 11, 1884.

E. KEARSING, ESQ., *Dear Sir:*—In reply to your inquiry about my opinion of the merits of your Gold Foil, I can say frankly, after having had over thirty years' acquaintance with it, that it works and wears beautifully. No gold foil ever had a better endorsement than that given your gold foil by the late Dr. Marshall H. Webb, whose elegant operations live to do honor to him and reward you. Your cohesive foil, No. 4, folded into 32 or 48, is daily giving me great satisfaction, being uniformly impacted from beginning to end of the filling with the Electric Plugger. Yours very truly, E. PARMLY BROWN.

101 HOYT STREET,

P. O. Box 132 BROOKLYN, N. Y.

7-4-AN-½

"THE OLD RELIABLE."

LAWRENCE'S AMALGAM.

RES NON VERBA

LAWRENCE

TRADE MARK

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the Trade should be addressed accordingly.

Price, $3.00 per Ounce. For sale at all respectable Dental Depots.

Manufactured only by

AMBROSE LAWRENCE, M. D., 476 Columbus Avenue, Boston, Mass.

10-4-AN ¼

The Wilmington Dental Manufacturing Co.

MANUFACTURERS OF

ARTIFICIAL TEETH,

Nos. 1010 and 1012 KING STREET,

WILMINGTON, DELAWARE.

Having been justly recognized as manufacturing a very SUPERIOR TOOTH at a very moderate PRICE, they now avail themselves of this medium by which they hope to present their merits to the Dental Profession. They have now perfected their designs as to the character of their MODELS, and have fully succeeded in being able to present to the Dentist an opportunity to select a SHADE of enamel which will harmonize and correlate with that of the natural tooth.

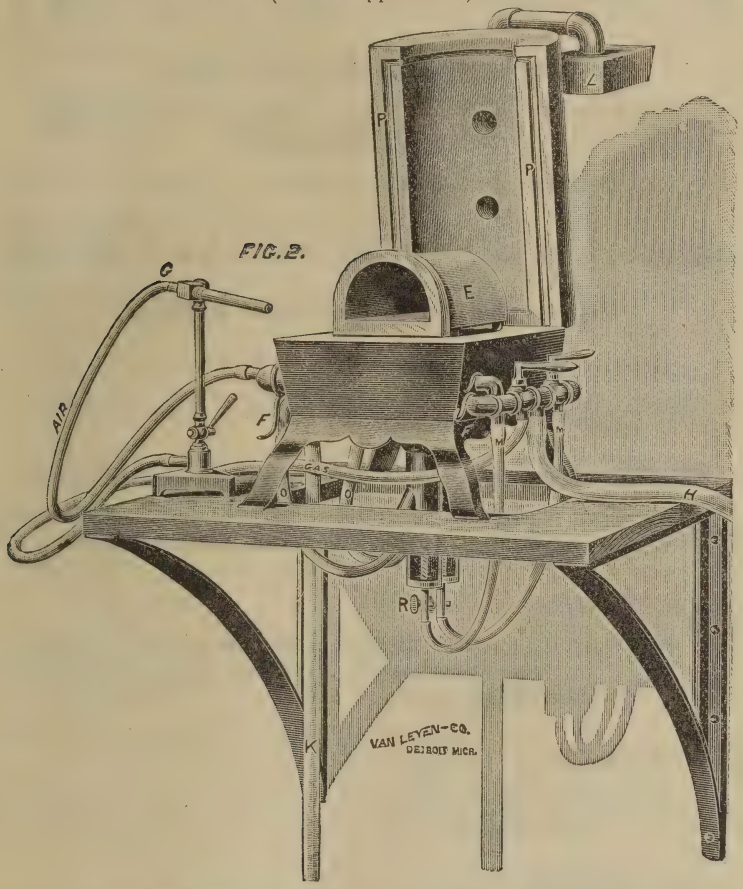
☞ *For sale by Dental Dealers everywhere. Send for price list.*

DR. C. H. LAND'S

COMPOUND

GAS OR GASOLINE FURNACE

(Patent Applied for.)



Size No. 1. especially adapted for all kinds of muffle work, crucible work, blow-pipe work, forging and brazing. It is the most complete furnace ever devised for the chemist, assayer, jeweler, dentist and metallurgist. Continuous gum and porcelain can be baked in from 15 to 20 minutes in the most perfect manner and with unerring precision. Send for descriptive circular.

Instructions—In order to enable those who contemplate using gas furnaces and to comprehend their great superiority over coal or coke fires, my laboratory will be open free to all, and with those who desire a special course in continuous gum work, enamel metallic coatings and enamel fillings, favorable arrangements can be made. A visit to my laboratory will be of the utmost value. Here furnaces are operated by both foot and steam power, using either gas or gasoline. Thus practical working can be seen to the best advantage.

Address, **C. H. LAND, 264 Woodward Ave., Detroit, Mich.**

GEO. E. HODGE, President. AUG. WEBER, Secretary.

THE

New York Dental Manufacturing Company

1300 BROADWAY, COR. 34th STREET,

NEW YORK CITY.

C. ASH & SONS' MINERAL TEETH

Possess the following desirable qualities:

1. *NATURAL FORMS—*

   In great variety and of various sizes and lengths.

2. *COLOURS—*

   Ranging from very light to very dark shades, and closely resembling the various colours of the human teeth.

3. *TEXTURE—*

   Non-porous, so that they can be ground and polished to suit particular cases, therefore being well adapted for Bridge work.

4. *STRENGTH—*

   Possessing unusual strength on account of their fine and close texture.

5. *SOLDERING—*

   Bearing in an extraordinary manner the sudden transitions of temperature so that they can be soldered without cracking.

We especially invite comparison to each of these points enumerated above. There are no teeth in the world made to compare with them

THE "DIATORIC" TEETH

without pins, are superior to any cheap tooth made in this country.

The very high reputation obtained all over Europe and other parts of the world, by the Messrs. CLAUDIUS ASH & SONS, for the superior excellence of their

Mineral Teeth and Dental Rubbers,

seems to be rapidly coming to them in this country.

We have the largest stock of these goods of any depot in the United States, and are prepared to give particular attention to filling orders, and to the selection of teeth for special cases.

Hand Piece for Dental Engine, - - - - $10.00.
Right Angle Attachment, - - - - - - 6.00.

Stone Cut Burs, per Doz.

000 to 8	$3.00
9 to 11	4.20
12 to 14	4.80

Keen-edge Burs, per Doz.

000 to 8	$2.25
9 to 11	3.60
12 to 14	4.20

Finishing, per Doz.

3 to 8..50 c. each	$6.00
9 to 11..60 "	7.20
12 to 14..75 "	9.00

Finishing, per Doz.

3 to 8..40 c. each	$6.00
9 to 11..60 "	7.20
12 to 14..75 "	9.00

Drills, per Doz.

00 to 8	$2.00
0 to 5, flexible	4.00

Flexible Burs, per Doz.

1 to 5...40 c. each	$4.80
Morey Drills, 50 c. each	6.00

We shall soon issue a card for a new variety cavity cutting stone cut bur.

The World's Premium Teeth.

A Statement of Facts.

ABUNDANT justification for the bestowal of the above appellation upon our Porcelain Teeth is found in the long line of first awards which they have received.

Starting with a Gold Medal, awarded at the American Institute Exhibition at New York in 1848, the list of testimonials of similar character has steadily grown, no year having passed without contributing its quota. Wherever and whenever our Teeth have been placed in competition they have carried off the honors.

This is emphatically true of the Great World's Fairs, beginning with the first (Crystal Palace), held in London in 1851, and ending with the Cotton Centennial at New Orleans, ten in all. Whenever graded premiums, denoting degrees of merit, have been granted, we have uniformly received the highest.

Three conspicuous examples may be given — Paris, 1867; Vienna, 1873; Paris, 1878. At the first Paris Exposition Universelle in 1867, a Gold Medal was awarded to Samuel S. White. No other manufacturer of porcelain teeth was similarly honored. At Vienna Gold, Silver and Bronze Medals were conferred to distinguish degrees of merit; but above and beyond even the Gold Medal was the Grand Diploma of Honor, which was conferred as the "peculiar distinction of eminent merits." Of the hundreds of individual exhibits from the United States only four were esteemed worthy of this "peculiar distinction." Medals, especially those of Bronze, were lavishly bestowed. The Grand Diploma of Honor, the "only really valuable distinction," was awarded to Samuel S. White. It seems necessary, even at this date, to repeat the statement that the highest award received by any other manufacturer of Porcelain Teeth was a Bronze Medal. At the Paris Exposition of 1878, graded Medals were conferred. In the department of Dentistry four medals were granted to exhibitors from the United States. Three of these were of Bronze and were received by our competitors; the fourth was of Gold and was presented to Samuel S. White.

In the light of the foregoing facts a Bronze Medal would seem to have small claim to the honor of "First Medal," or "Highest award," at either the Vienna Exposition or the Paris Exposition of 1878.

Most of the World's Fairs, beside those already mentioned, conferred but one medal on all alike whose exhibits were deemed worthy of award, relative merit being indicated, if at all, by discriminating reports of the Judges. The American Centennial, Philadelphia, 1876, is a type of these.

The announcement by an exhibitor that he received the "First Medal" at the Centennial is evidence either of misapprehension of the system of awards or of willful intention to mislead. Every medal conferred was of bronze. The highest award could only be determined by comparing the Judges' Reports on the various exhibits. In proof of our claim that we received the highest award, we submit a copy of the Official Report on our exhibit:

GROUP NO. 24. PRODUCT, PORCELAIN TEETH. EXHIBITOR, SAMUEL S. WHITE, PHILADELPHIA, PA.

The undersigned, having examined the product herein described, respectfully recommend the same to the United States Centennial Commission for award, for the following reasons, namely:

1. That while equal to all others in color, texture and translucency, they are DECIDEDLY SUPERIOR in a faithful reproduction of the physiological characteristics of the natural organs, both in the individual teeth and relatively to the entire set.

2 Their conformation with reference to close and easy adaptation to the maxillary arch shows careful study of the needs of both patient and operator.

3. For the various and numerous deviations from uniformity of arch and outline, simulating the irregularities of nature, and thereby disarming suspicion of their artificial character.

4. For the skillful distribution of tooth-material in such manner as to secure the greatest amount of strength with the least bulk and weight, and for the peculiar form and insertion of the platinum pins. For the maintenance of these good qualities through an immense variety of size, color, and form of each class of teeth, **Excelling any other Exhibit.**

Signed,

C. B. WHITE, M. D.
J. H. THOMPSON, M. D.
W. ROTH. M. D.,
Surgeon-Gen'l, Saxony, Ger.
ERNST VON FLEISCHEL, M. D.

One Hundred and Three First Premiums—and we mean FIRST; no award being reckoned as a first premium which was not the highest in our class—establishes our claim that our Porcelain teeth are justly entitled the World's Premium Teeth.

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

DENTAL INSTRUMENTS.

MORE than twenty years ago it was determined that this house should manufacture instruments of a higher quality and of better finish than had ever been placed within the reach of the dental profession. That there was great room for improvement and a necessity for a better class of implements to meet the needs of the growing ambition and the increasing manipulative skill of dental operators admitted of no question. In form, in temper, and in finish a new departure was imperatively demanded. From that day to this, without regard to expense, we have spared no effort to get out all that skill, ingenuity and patient industry could produce from steel, in order that we might claim, without fear of successful contradiction, to lead the world in dental instruments.

It is a common remark of physicians and surgeons nowadays when examining our stock of dental instruments, "No wonder American dentistry has made the progress it has. No surgical instruments are to be had which, in adaptation to the uses intended, in temper or in finish, are at all comparable to these."

The dental profession has been quick to perceive and prompt to avail itself of these manifest advances, and we are glad to acknowledge that the appreciation thus shown has been a constant stimulus to fresh effort and further progress.

We point to-day with pardonable pride to the universal acknowledgment that our products in Steel—Pluggers, Excavators, Scalers, Burs, Forceps, etc.—excel all other goods of their kind to be found in the world, because we believe the distinction has been earned. We have observed, compared, reflected and recorded; we have gathered patiently and perseveringly the suggestions and criticisms of the dental profession through many years; we have adopted from every available source improved methods of manipulation; we have made many experiments and modifications, wresting success from our very failures. Upon the outcome we challenge the world to produce like combinations of delicacy, temper and strength.

As is usually the case with successful efforts of this character, our productions have been extensively copied, and there are more imitations on the market to-day than ever before. The productions of other establishments in our line, during the last fifteen or twenty years, have been mainly imitations of goods first brought out by us. Nearly all the instruments and appliances which have marked real progress in the dental art have been introduced by this house. These imitations, especially of the smaller instruments, are frequently difficult of detection by mere sight, but in use their inferiority becomes painfully apparent to one accustomed to our goods. The small saving in cost is no compensation for the difference in quality, for to the dentist **THE BEST IS ALWAYS THE CHEAPEST.**

There is no necessity for any dentist to accept other makes of goods if ours are desired. If ours are not obtainable elsewhere, a direct order to us with remittance will receive prompt attention.

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

STONED ENGINE BURS.

REDUCTION IN PRICE.

Stoned Cavity Burs

Nos. ½ to 7, 11½ to 18, 22½ to 29, 33½ to 40, 44½ to 51, 55½ to 62, 66½ to 73, 88½ to 95, ... per doz. $3.00.

Stoned Cavity Burs

Nos. 8 to 11, 19 to 22, 30 to 33, 41 to 44, 52 to 55, 63 to 66, 74 to 77, 96 to 99, ... per doz. $4 00.

Stoned Plug-Finishing Burs

Nos. 200 to 204, 206 to 210, 212 to 216, 218 to 222, 224 to 228, 230 to 234, 236, 240, 242 to 246, ... per doz. $6.40.

Stoned Plug-Finishing Burs

Nos. 205, 211, 217, 223, 229, 235, 241, 247 to 250, . . per doz. $8.00

TRADE

MARK.

Our Trade-Mark, as above represented, is our guarantee of quality to the purchaser of our goods. It is stamped upon dental instruments of our manufacture whenever practicable; and when this is impossible the goods are put up in packages or envelopes bearing a printed copy of the Trade-Mark.

We have had instruments which were not of our manufacture sent to us for exchange on account of defects.

Purchasers would do well to examine all instruments and decline to receive any as our make that do not carry the Trade-Mark, either on the instruments or on the wrapper.

All our instruments are subjected to severe tests before they are put on sale, and we will gladly exchange any instrument that shows flaws or defects.

We invite the most critical examination of the instruments bearing our Trade-Mark, and are willing to have them submitted to the severest test which instruments are subjected to in the hands of an intelligent practitioner.

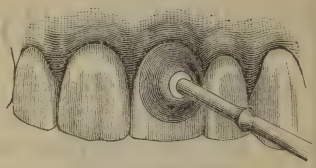
THE S. S. WHITE DENTAL MANUFACTURING CO.,

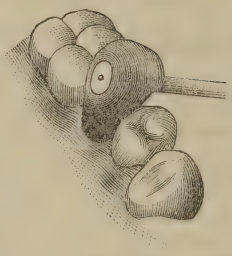
Philadelphia, New York, Boston, Chicago, Brooklyn.

SOFT RUBBER POLISHING CUP.

SUGGESTED BY DR. J. B. WOOD.

Patent applied for.





These little Cups of soft rubber will be found among the useful appliances for cleansing and polishing the natural teeth. Under slight pressure the cup adapts itself to the shape of the tooth, carrying the polishing powder to every portion of the surface without discomfort to the patient. The lingual and palatal surfaces are as readily operated on as the labial and buccal faces.

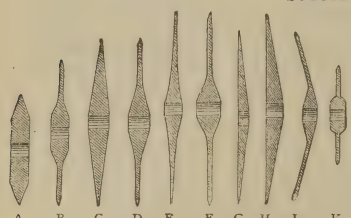
Two sizes are made. Used with mandrels Nos. 303, 304, and 313.

Price, - - - - - - - - each 5 cents.

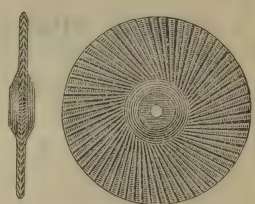
REDUCTION IN PRICES.

CORRUGATED SOFT RUBBER DISKS AND POINTS.

SUGGESTED BY DR. C. E. FRANCIS.

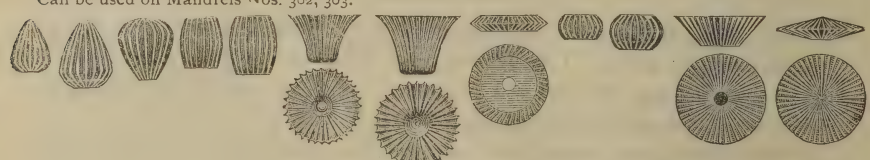


A B C D E F G H I K



Disks, A to K, not mounted, - - - - - - - - - each 5 cents.

Can be used on Mandrels Nos. 302, 303.



1 2 3 4 5 6 7 8 9 10 11 12

Points, Nos. 1 to 12, not mounted, - - - - - - - per doz. 40 cents.

" " " " - - - - - - - each 4 "

Can be used on Mandrels Nos. 302, 303, and 313.

These Disks and Points of soft rubber, with CORRUGATED surfaces, are pronounced very superior to those with plain surfaces. They are used for carrying powders, either for polishing the natural teeth or for finishing fillings.

BONE-CENTER TOOTH-BRUSH WHEELS.

REDUCTION IN PRICES.

No. 1.

No. 2.

No. 1.	Cup Shape, with Stem, -	20 cents.
No. 1.	Cup Shape, without Stem,	20 "
No. 2.	Straight, with Stem, -	25 "
No. 2.	Straight, without Stem, -	25 "

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

DR. E. PARMLY BROWN'S TOOTH-CROWNS.

Patent applied for.

FIG. 1. FIG. 2. FIG. 3. FIG. 4.

Fig. 1 is a lateral view of a porcelain crown, with a platino-iridium pin baked in position. The pin has great strength at the neck of the tooth, where the strain is greatest, the porcelain of the tooth extending up on to the pin to increase the strength.

Fig. 2 is a front view of the same crown, showing by dotted lines the form which the metal occupies in the crown to increase the strength of the attachment, and prevent the pin from approaching the surface in thin teeth.

Fig. 3 is a view of the two-pin bicuspid crown, which affords a pin for each root of a two-rooted bicuspid.

Fig. 4 is a view of a bicuspid crown with the two pins pressed together, making a single pin for one root.

The double pin in the bicuspid crown prevents the loosening of these teeth by the rotary movements of mastication, which by means of the two cusps exert such leverage as to turn and break down the ordinary crown where only one pin is used.

The roots are ground concave to fit the crowns with corundum points or a Willard countersink bur, and the close joints made well under the gum. setting the pins with oxyphosphate cement.

See DENTAL COSMOS, September, 1886, pages 583, 588, and 589.

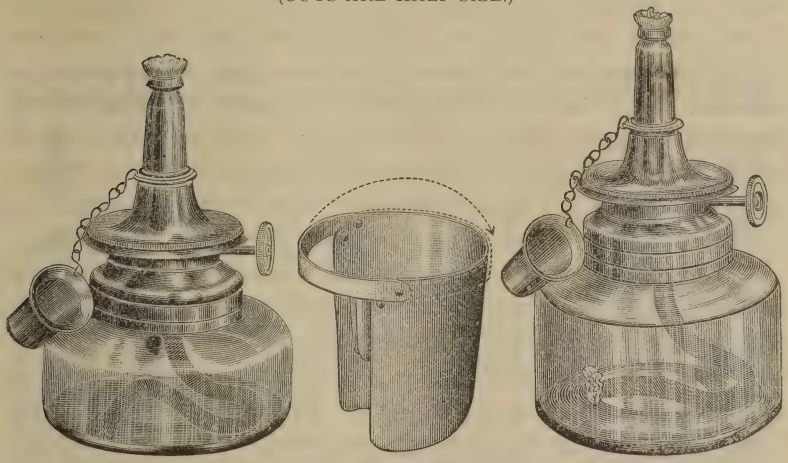
PRICES.

Brown's Tooth-Crowns, single pin, - - - - - each 65 cents.
" " double " - - - - - - " 65 "

ALCOHOL LAMPS WITH IMPROVED FLAME SHIELD.

Suggested by Dr. J. V. Calver.

(CUTS ARE HALF SIZE.)



No. 1. **IMPROVED FLAME SHIELD.** No. 2.

The Lamp is so well known and shown so plainly as to need no explanation. The Flame Shield has been improved by the addition of a semi-circular band pivoted on the edge of the shield and capable of being turned forward and backward as shown in cut. When brought forward it forms a rest for small heating cups, annealing trays, etc.

Price of either Lamp, without Flame Shield, - - - 40 cents.
" " " with " " - - - - 70 "

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

To the Dental Profession.

GENTLEMEN:

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

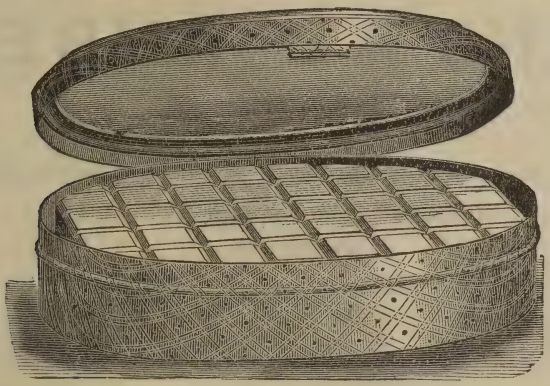
I. W. LYON, D.D.S.,

88 MAIDEN LANE, NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

DR. I. W. LYON'S TOOTH TABLETS



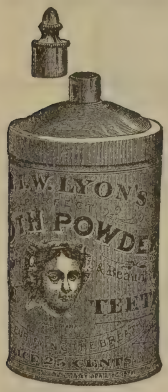
For Purity, Efficiency, Neatness and Convenience these Tablets have no equal as a Dentifrice. They are put up in Seamless Metallic Boxes, which are impervious to air and moisture, and may be carried on a journey without danger of breaking.

HIGHLY INDORSED BY EMINENT DENTISTS.

PRICE **50** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

DR. I. W. LYON'S

PERFECT TOOTH POWDER



ENAMELLED METAL BOX REDUCED IN SIZE.

This Powder is carefully prepared by an experienced dentist, familiarized by practice with the wants of the teeth. It is absolutely pure and free from acid, grit, or other hurtful substances, and is highly recommended by the most eminent men in the profession. It gives a *delightfully refreshing sensation* in the mouth, strengthening and healing the gums, and imparting a fragrance to the breath which is very agreeable.

Put up in an enamelled metal box with sprinkler top, free from the mishaps incident to glass or wood, and very convenient for use, especially in traveling.

ENAMELLED PAPER CARTON REDUCED IN SIZE.

PRICE **25** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

I. W. LYON, D.D.S., PROPRIETOR,

83 MAIDEN LANE, NEW YORK.

3-5-AN-2

AKRON
DENTAL RUBBER

The materials of which this Rubber is composed
are prepared by new processes,
which insure

ABSOLUTE PURITY,

Resulting in a Product of Wonderful

DENSITY, FIRMNESS AND STRENGTH.

It is especially designed to meet the requirements of those who seek to produce the most perfect and artistic work.

It is exceedingly tough and light, and takes a beautiful polish.

Plates may be made very thin without danger of splitting or crumbling away about the edges.

It can be used with the best results for making partial lower dentures, an advantage which no other rubber possesses.

It has the unqualified approbation and endorsement of the profession everywhere, and never fails to give satisfaction.

It will cost you nothing to try it.

Send for samples and prices.

AKRON RUBBER WORKS,

AKRON, OHIO.

Sold by all Dental Depots.

11-5-AN-1

PARSON'S EUREKA SILVER ALLOY.

I am manufacturing and offering for sale a superior Amalgam or Silver Alloy, which has the following properties: It is a quick setting alloy, has great edge strength, therefore a superior alloy for mounting artificial crowns on natural roots. Fillings may be finished and polished in fifteen or twenty minutes after inserting, and retain their polish and silvery whiteness remarkably.

It does not spheroid or bulge like many alloys of inferior grade.

If you wish to use one of the nicest working alloys in the market, send for ½ oz., **$1.50**; 1 oz., **$3.00**; or 4 oz. for **$10.00**.

Let the profession give my alloy a fair and impartial trial, and I feel confident I shall receive a liberal amount of patronage. Respectfully,

DR. W. H. PARSONS,

Sole Proprietor and Manufacturer. WAMEGO, KANSAS, U. S. A.

TESTIMONIALS.

HOUSTON, TEXAS, April 26, 1885.

DR. PARSONS—*Dear Sir:* The Alloy came safely to hand. I am very well pleased with it. Very respectfully, DR. S. E. JONES.

ROCHESTER, N. Y., April 13, 1885.

H. W. PARSONS—*My Dear Friend:* The boxes of Amalgam were duly received, and I consider it very nice indeed. Respectfully Yours, DR. S. G. WOOD.

RICH HILL, Mo., Feb. 9, 1886.

DR. H. W. PARSONS—*Dear Dr.:* Yours of the 5th inst. at hand, and in reply would say your Eureka Alloy is the best I ever used. Respectfully, C. E. JONES, D.D.S.

COLUMBIA, Mo., March 16, 1886.

DR. H. W. PARSONS—*Dear Sir:* I have used your Eureka Silver Alloy for one year, and am much pleased with it. I find its properties all that you represent them to be.

Respectfully, DR. N. HOCKENSMITH.

7-6-00-½

W. C. JACOBS, MANAGER.

1-7-AN-½

CHERRY MALT PHOSPHITES.

This preparation is believed to be the only Malt Extract continuously acceptable to the stomach. The attention of those who have ceased prescribing other extracts of malt because of excessive sweetness is specially called to this.

CHERRY MALT PHOSPHITES is a combination of Wild Cherry, the condensed extract of the important Cereals and the Elixir of the Hypo-phosphites. Its flavor is delicious, and it is medicinally invaluable in all cases of General and Nervous Debility, Dyspepsia, Imperfect Nutrition, Impure Blood, Wasting Diseases of Children and Adults. It is extensively prescribed in European countries, and has received the cordial endorsement of the leading practitioners of this country

Price $1.00 per Bottle.

To Physicians not familiar with its merits, who will pay express charges, we will send a full-sized bottle *free*.

Please mention this journal.

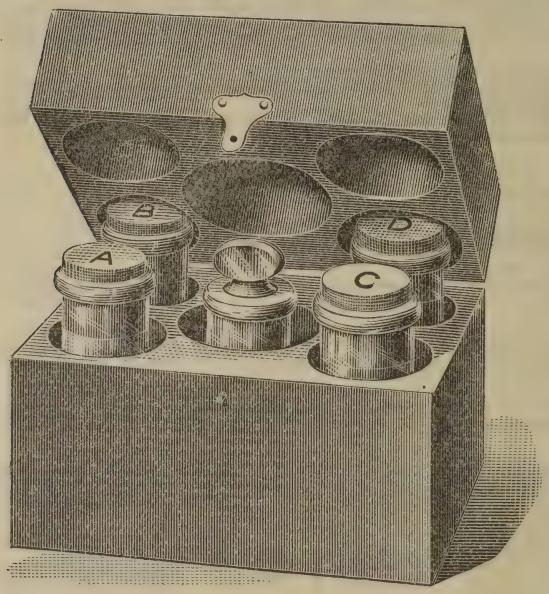
LIEBIG'S LIQUID FOOD,

A Concentrated Extract of Beef possessing both tonic and nutrient properties.

MANUFACTURED ONLY BY THE

LIEBIG PHARMACAL CO., N. Y.

SMITH'S ADAMANTINE PHOSPHATE CEMENT.



INSOLUBLE.

TWO COLORS.

Price, - - *$1.00.*

Also in Cedar Cases, as shown in cut, containing four colors of Powder and one bottle of Liquid, glass-stoppered.

A, White; B, Brown; C, Yellow; D, Bluish.

PRICE, - $2.00.

SMITH'S

Oxychloride of Zinc.

PRICES—Plain Form, one-ounce, - - - - - - - each $1.00
Cedar Cases, as shown in cut, containing four colors of Powder and one bottle of Liquid, glass-stoppered, - - - - " $2.00
A, White; B, Brown; C, Yellow; D, Bluish.

10-6-00 ½

DR. J. H. SMITH, New Haven, Conn.

TO INVENTORS.

If you desire to patent your invention, enclose your address, *with stamp for reply*, and the undersigned will take pleasure in giving you the benefit of his *large* experience with United States and foreign patent lawyers.

B. M. WILKERSON, M. D., D. D. S.,

(Inventor of the Wilkerson Dental Chair, etc.)

No. 1215 Madison Ave., Baltimore, Md.

12-6-00-½

PH. SCHMIDT,

MANUFACTURER OF AND DEALER IN

DENTAL INSTRUMENTS

OF THE MOST IMPROVED KINDS,

1368 BROADWAY,

Near 37th Street, NEW YORK.

WHOLESALE AND RETAIL.

My Goods are Used and Recommended by the Most Prominent Dentists.

A PRACTICAL EXPERIENCE OF THIRTY YEARS.

Personal attention given to all my work.

9-5-AN-⅓

ALFRED J. NICKOLDS,

Refiner and Manufacturer of

Dentists' Chemically Pure 1000 Fine

GOLD FOILS, GOLD PELLETS,

TIN FOIL, ETC.,

238 McDonough Street,

BROOKLYN, N. Y.

Special attention is invited to *Nickolds' Improved Soft Gold Foil* and *prepared Pellets;* pronounced the best article of Gold Foil extant.

7-4-AN-¼

LINE YOUR RUBBER PLATES

— WITH —

Robinson's Improved

VULCANIZABLE GOLD.

It is now more than two years since Vulcanizable Gold has been introduced to the profession, and the great improvement now made gives it great superiority over all other manufactures now before the public for the following reasons:

First—It is heavier than any other manufacture in the market.

Second—It is absolutely pure gold, 1000 fine.

Third—It is more easily applied, on account of its flexibility and cohesive qualities.

Fourth—It is so thoroughly incorporated with the rubber in the plate that it is part of the plate itself, and will not peel or wear off.

Fifth—It comes out of the vulcanizer thoroughly bright and polished.

Ask your dealer for the

IMPROVED VULCANIZABLE GOLD

AND TAKE NO OTHER.

S. S. WHITE DENTAL M'F'G CO.,

SOLE AGENTS.

1-5-AN-1.

THE DIAGRAM
APPOINTMENT BOOK
And DIARY.

SOMETHING NEW.
SOMETHING DESIRABLE.

The "Diagram" Appointment Book and Pocket Diary is a new book suggested by practical dentists, and meets the wants of the profession. The "Diagram" Appointment Book is 6¾ x 4¼ inches. In the front it has calendars for 1886, 1887, 1888 and 1889, and a table to show the number of days from any day in one month to the same day in any other month. The new feature of the book combines with an appointment book a DIAGRAM for registering the work to be done, or to make memorandum of the work when finished, by having a diagram for each day, and the diagram in such shape as to be efficient and yet not make the book bulky and unhandy. There are one week's appointments on two opposite pages, and, therefore, six diagrams on same space. In the back of book are the pages for memoranda.

TUESDAY.
2 Mo 10

8	Miss Frailey	1	P. W. Peck
9		2	Edgar Thomas
10	Bertie Doak	3	
11	Mrs Harmon	4	Paul Ross
12		5	

The above is a facsimile of one day's work in the "Diagram Appointment Book;" the appointments are made as usual, and the fillings are accurately noted on the diagram. No ledger or other memorandum is necessary for immediate use; at leisure the work may be copied into the large ledger, if desired. After each persons name a note may be made of the amount charged or paid. It will be seen that it is easy to keep a record on this diagram of the work of this day, or of any day, by letting the hour of appointment stand for that person in the diagram; thus the figures 8 in the diagram stand for Miss Frailey, the 8 o'clock appointment.

There can be no disappointment in the paper, ruling, printing or binding, as they are all first-class in every particular.

PRICE 50 CENTS. TRADE SUPPLIED.

WELCH, DENTAL CO., Publishers.

EVERY PHYSICIAN SHOULD USE THE BEST!

OLEO-CHYLE

THE ONLY PREPARATION OF NORWEGIAN COD LIVER OIL WHICH CONTAINS

70 PER CENT. OF OIL IN A DIGESTED FORM.

FORMULA OF OLEO-CHYLE.

Peptonized Cod Liver Oil.....85 Min.	Oleic Hypophosphites.....5 Grs.
Pancreatine.....2 Grs.	Sodium Hyocholate.....¾ Grs.
Water.....25 Min.	MIX.

DOSE: Two teaspoonfuls thrice daily at meal times.—It is preferable to take *Oleo-Chyle* in milk.

OLEO-CHYLE is **NOT AN EMULSION,** neither is it a simple admixture of Cod Liver Oil with Pepsin and Pancreatine; *it is* **Pure Norwegian Cod Liver Oil, perfectly digested with both Pepsin and Pancreatine** in exactly the same manner and consuming about the same length of time under the same conditions as to temperature, etc., as oil would be subjected to by the **human stomach and duodenum** before being presented to the **lacteals for absorption into the blood.**

OLEO-CHYLE contains **no gum, sugar, glycerine, Irish moss or any viscid substance whatever** to hold the oil in suspension as in all artificial Emulsions, (with all of these ingredients **Oleo-Chyle** is incompatible.)

In the preparation of **OLEO-CHYLE** we use none but the

Pure "Lafoten" Norwegian Cod Liver Oil,

manufactured on the Island of Lafoten, Norway, and imported by ourselves direct, thus avoiding the liability of adulteration while in the hands of Cod Liver Oil Dealers in London or Hamburg. We therefore guarantee its purity.

This Oil is by far the richest in **IODINE** and all **FAT PRODUCING** and **LIFE-SUSTAINING** qualities as well as the most pleasant to the taste.

——OPINIONS OF THE MEDICAL PROFESSION.——

Spencer, Ind., Feb. 19th, 1886.

Messrs. Geo. W. Laird & Co.

The patient to whom I gave "**OLEO-CHYLE**" was suffering from mal-assimilation of food, loss of weight, with variable appetite, giving such strong symptoms of Consumption that we thought she could survive but a few months at most. *She had taken Pepsin and Cod Liver Oil in many forms but did not gain a pound,* but after taking "**OLEO-CHYLE**" in fresh milk for two weeks she gained thirteen pounds in weight, and so much in looks and spirits that she is like an entirely different person. This is a strong letter, but I know of what I speak, as the patient is my wife, E. N. MULLINNIX, M.D.

Irvington, N. J., Jan. 14th, 1886.

Messrs. Geo. W. Laird & Co.

In its adaptation to Chronic Pulmonary Diseases its ready assimilation, its non-disturbance of the gastric functions, and its general benefit in all cases of debilitated constitutional diseases,

"OLEO-CHYLE" FURNISHES THE DESIDERATUM.

Easily taken, and readily compatible with milk, it supplies all that is required by nature to build anew the wasting tissues. JOSEPH L. WADE, M.D.

913 7th Ave., N. Y. City, Dec. 30th, 1884.

Messrs. Geo. W. Laird & Co,

I have fully tested your "**OLEO-CHYLE**" upon myself with entire satisfaction. For several years I have been advised to take Cod Liver Oil for faulty assimilation and deficiency of fat in the body. I have never been able to digest any form of oil from the plain oil to the *elegant emulsions(?)* so-called. *Your preparation, which is a permanent milky fluid,* I take and assimilate with ease, and already feel the good effects thereof. F. S. GRANT, M.D.
Med. Ex. Provident Life Ass. Society.

Victoria, Texas, July 17th, 1886.

Messrs. Geo. W. Laird & Co.

The sample of "**OLEO-CHYLE**" you sent me on Dec. 4th, 1884, has just been used by a patient, who has been greatly benefitted by it, so much so that I send $2.00 for two more bottles by express.
THOS. R. COCKE, M.D.

This sample was 19 months and 13 days old, but its medicinal value and palatability were not impaired.

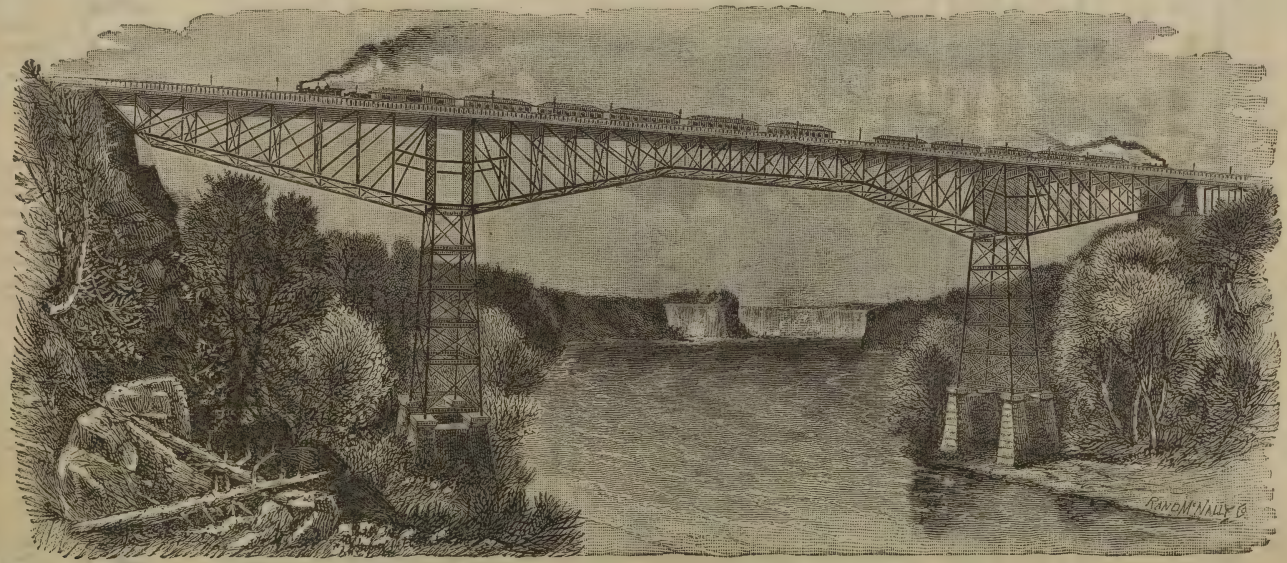
If your Druggist does not keep **OLEO-CHYLE** in stock, do not wait for him to obtain it, but send us One Dollar by mail and we will send a Bottle by return express prepaid.

WRITE TO US FOR PAMPHLET AND MENTION THIS JOURNAL.

Geo. W. Laird & Co

39 BARCLAY ST., N. Y.

ALL MICHIGAN CENTRAL Express Trains with through cars to DETROIT, TOLEDO CHICAGO, ST. LOUIS, Etc., cross the great Cantilever Bridge, below and in front of the Falls, as shown in this cut, thence along the west bank of the Niagara River to FALLS VIEW, where passengers are afforded the grandest view of the great cataract. DINING CARS ATTACHED TO ALL THROUGH TRAINS.



The New Michigan Central Double Track Bridge over Niagara River, Completed Dec. 1st, 1883.

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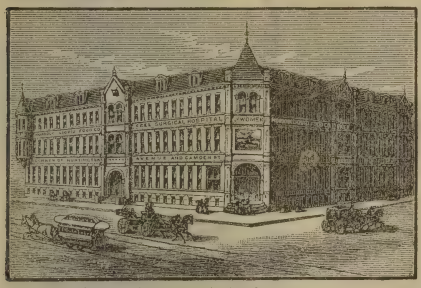

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Send for the Report of the Chairman of the Section of Obstetrics of the American Institute of Homœopathy, read at Saratoga at the annual meeting of 1886.

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Then what results, with all the different Milk preparations, Grain Foods, Peptonoid Foods and Beef Extracts, compared with Murdock's Liquid Food.

The Returns show that it is the Standard Food and Extract, as the percentage of lives restored was the largest when used.

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"It is singularly adapted to scrofulous, syphilitic, and tubercular constitutions, its life-restoring power manifesting itself in each with a relative clearness and power corresponding to the order of enumeration. For fair-haired children who are inclined to grow fleshy it is more symptomatically recommended, while Duncan's *acid* babies find it particularly useful. Accordingly it is chiefly employed for marasmus and anæmic conditions resulting either from non-assimilation of food or from simple summer complaints. Should a child vomit all milk food and suffer synchronously with diarrhœa or dysentery, the demand for this food is emphatic and unmistakable; also in general irritability of the stomach, particularly if there be sour-smelling diarrhœa, the food passing through undigested. For the prematurely born it stands pre-eminent. For those 'weak and debilitated from any cause, Murdock's Food is probably the best in the world.' Should any indication of cerebral hyperæmia appear, the quantity of food must be diminished; so, too, if after its protracted use, vomiting and diarrhœa ensue, the child has been overfed. *Should the taste or odor of any given bottle chance to be disagreeable, add water until they disappear, and let the purchaser congratulate himself upon getting more nutriment than he paid for.* When given in combination with milk in cases of indigestion, the quantity of milk should be diminished until all curds disappear from the stool, the quantity of Food, of course, being proportionately increased."

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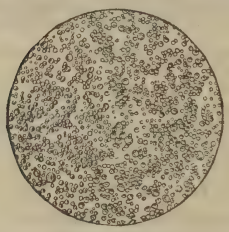

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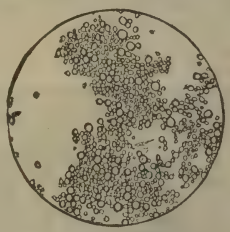

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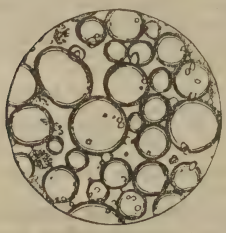

* **No. 1.**
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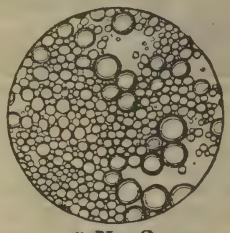

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All preparations of Cod Liver Oil, but the plain, in the market are Emulsions in some form, regardless of the names given them. *Their value and easy digestibility over the plain Oil must consist in the division of the oil globules.* Any physician who has a microscope of any power can compare COD LIVER OIL AND MILK with the various preparations of Cod Liver Oil, and he will find that the oil globules of COD LIVER OIL AND MILK are from 10 to 100 times finer than any preparation of Cod Liver Oil in the market, and 25 per cent. finer than nature's Emulsion, milk. This should be the guide in the use of Cod Liver Oil with every practitioner.

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JAMES R. DUGGAN, PH. D.

Feb. 26, 1885. Fellow in the Johns Hopkins University, Sec'y Baltimore Micros'l Society.

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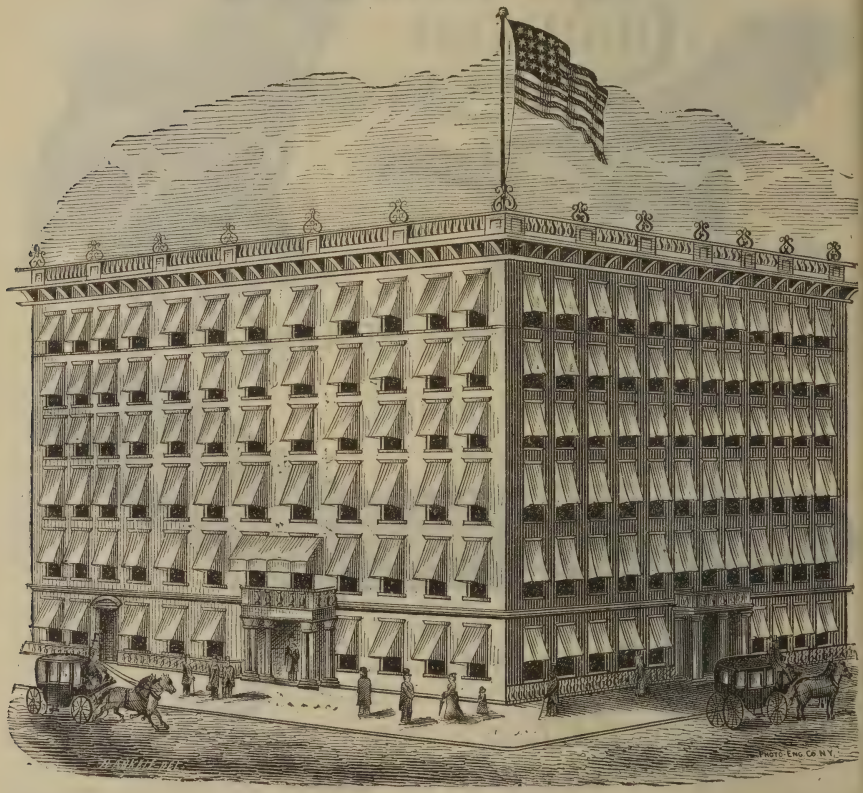

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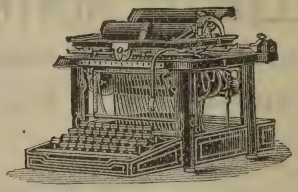

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Vol. VIII. FEBRUARY, 1887. No. 2.

THE

Independent Practitioner:

A Monthly Journal

DEVOTED TO

DENTAL AND ORAL SCIENCE.

W. C. BARRETT, M. D., D. D. S.,

EDITOR.

THE NEW YORK DENTAL JOURNAL ASSOCIATION,

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Table of Contents—February.

ORIGINAL COMMUNICATIONS:

A Bold Declaration Reviewed. C. A. Marvin.. 57
Courtesy Among Dentists at Professional Meetings. J. N. Farrar..... 71
The Herbst Method of Filling Teeth. C. F. W. Bodecker..... 78
Metallic Enamel Sections. A New System for Filling Teeth. Dr. C. H. Land..... 87
Dentistry and Medicine. Herbert M. King..... 90

REPORTS OF SOCIETY MEETINGS:

First District Dental Society of New York..... 93
New York Odontological Society..... 96

EDITORIAL:

The First District Dental Society Meeting and Some of its Results..... 99
Broken Broaches in Pulp Canals..... 103
Can there be Suppuration without the Presence of Micro Organisms? 104
To Subscribers..... 105
The Western Dental Journal..... 105
Dental Societies in America..... 106

CURRENT NEWS AND OPINION..... 107

Index to Advertisements.

Horsford's Acid Phosphate....Cover Page 2
C. H. Land..... " 2
Dr. G. C. Daboll ..... " 2
Underwood Spring Water..... " 3
Parke, Davis & Co..... " 4
Listerine..... Adv. Page 1
Caulk's Dental Annual. ..... " 2
Seabury & Johnson..... " 3
Claudius Ash & Sons ..... " 4 & 5
Acme Gold Foil..... " 6
American Dental Manuf. Co .. " 7
Caulk's Filling Materials..... " 8 & 9
Cogswell's Disk Carrier & Guard " 10
Edward Rowan & Co..... " 11
C. A. Timme & Co..... " 12 & 13
Hardman's Amalgams..... " 14
Dibble's White Amalgam..... " 14
E. Kearsing ..... " 15
Lawrence's Amalgam..... " 15
Wilmington Dental Mf'g Co ... " 16
Gasoline Furnace..... " 17
New York Dental Manuf'g Co .. " 18 & 19
S. S. White Dental Manuf'g Co. " 20–25

I. W. Lyon..... Page 26 & 27
Akron Dental Rubber.. ..... " 28
Parson's Eureka Alloy..... " 29
Cherry Malt Phosphites..... " 29
J. H. Smith's Cements..... " 30
To Inventors..... " 30
Ph. Schmidt..... " 31
A. J Nickolds..... " 31
Vulcanizable Gold..... " 32
Welch Dental Co..... " 33
Baker, Jones & Co .. .. " 34
Michigan Central R'y..... " 35
Daly Gold Lining Dental Co.... " 36
Murdock's Liquid Food Co.... " 37
Reed & Carnrick ..... " 38
The Hartley Chair Co.. ..... " 39
Westminster Hotel.. ..... " 40
Philadelphia Dental College.... " 41
New York College of Dentistry " 42
Chicago College of Dent. Surg'y " 43
Remington Stand'd Type-writer " 44
Florence Manufacturing Co. .. " 44

The Independent Practitioner—Vol. VIII.

AN INDEPENDENT DENTAL JOURNAL

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Prospectus.

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THE

Independent Practitioner.

VOL. VIII. FEBRUARY, 1887. NO. 2.

Original Communications.

NOTE.—No paper published or to be published in another journal will be accepted for this department. All papers must be in the hands of the Editor before the first day of the month preceding that in which they are expected to appear. Extra copies will be furnished to each contributor of an accepted original article, and reprints, in pamphlet form, may be had at the cost of the paper, press-work and binding, if ordered when the manuscript is forwarded. The Editor and Publishers are not responsible for the opinions expressed by contributors. The journal is issued promptly, on the first day of each month.

A BOLD DECLARATION REVIEWED.

BY DR. C. A. MARVIN.

READ BEFORE THE SECOND DISTRICT DENTAL SOCIETY AT ITS MEETING IN BROOKLYN, JANUARY 10, 1887.

Without prefixing any formal title to the paper I am about to present, I ask your attention while I consider from my standpoint —which I hope to be able to show is the correct standpoint—the startling declaration recently made by a member of our profession, that "dentistry is not a specialty of medicine."

This declaration is accompanied by a lengthy, exhaustive argument, supposed to be convincing to all minds capable of weighing argument and recognizing truth.

The whole—declaration and argument—comes to us in the shape of a formal paper read before several dental societies, published, in synopsis, in a medical journal, and *in extenso* in a dental journal, and asking endorsement, immediate and unreserved, from the

societies, in the form of an affirmative vote upon some previously prepared resolutions, to be offered when the paper had been read. We are also told that such resolutions have actually been passed by two or more dental societies.

If this is so, and resolutions of endorsement have been affirmatively voted with a haste so unseemly, I can only conclude that, among mental narcotics, a novel and radical assertion, clothed in smooth and apparently ingenuous language, is henceforth to take first rank, its stupefying influence being proportionate to its boldness of statement and disregard of commonly accepted theories. That gentlemen of judgment, of experience, of years, should consent by a formal vote to endorse any such radical proposition immediately upon its presentation, without time for calm consideration, is almost as surprising as the assurance of the utterance itself.

One word more of preface: It is to be regretted that the State Dental Society is apparently committed to the position taken in the paper. I say *apparently*, not really. If the author had been content with signing his name, and that only, the paper would have been known as the expression of his individual views, which, in fact, it is. But when the utterance is given to the public as from the "President of the New York State Dental Society," which State Society has not authorized any such utterance nor had knowledge of any such intention, a false impression is given, unfair to that society, and not justified by any action it has ever taken. Any weight which the name of an important society might constructively add to the published views of an individual officer, is immediately lost when it comes to be understood that any such use of its name was wholly unwarranted.

The paper which I am to review, *as a paper*, I consider excellent. It presents many valuable ideas, culls from the large field of dentistry many facts differing from each other, but each one characterizing some particular section of that large field, advances many suggestions, and opens the way to many lines of thought at once interesting, instructive and pertinent to dental inquiry. I find myself agreeing, as I doubt not a majority of the profession will at once agree, with the statement of the complex nature of dentistry (it has been stated many times before), of the necessity in order to be a competent dentist for artistic talent, mechanical talent, in-

deed, in the language of the author, of some knowledge "not only of nearly all the sciences, but in an equal degree nearly all the arts." This last is a sweeping sentence, but I do not make a face in the attempt to swallow even this. Indeed, without taking time to particularize, the paper is rich in good thoughts, and those thoughts, as is always the case with the author under consideration, are well and forcibly expressed. It is refreshing to read or hear a paper which distinctly states what its author means, without ambiguity or circumlocution. We then know just what we are asked to accept.

While, as I have said, I agree with many, nay most of the ideas advanced respecting dentistry as a calling, I do not agree with the proposition contained in the title of the paper, nor admit the force of the arguments brought to its support. Had that title been, Dentistry *more* than a Specialty of Medicine, I should have said "amen," and so would any sensible man. But dentistry in no sense a specialty of medicine? Oh, no! I cannot agree to that. The daughter may have arrayed herself so differently, may have acquired accomplishments so distinct, may have taken on habits of living, of activity so diverse that she can hardly be recognized; but let her not deny her parentage. Let her not refuse to credit to that parentage the fundamental rules of conduct and principles of life which have formed the basis of her subsequently erected character, and which she finds herself necessarily employing every day, even in her supposed new and different sphere of action. To deny her kinship is to cast away an honorable connection and become a nameless waif. Nay, more; it bespeaks an ignoble mind and betrays an unworthy ambition. Besides all this, it is not true.

The illustration of "the three tailors of Tooley St." can, without violence, be transferred to the other side of the argument. Suppose they had passed a different resolution, to-wit: "Resolved, that we do *not* belong to the 'People of England,' but are an independent nation ourselves," would they have displayed any more wisdom or been any the less Englishmen? To ask the question is to answer it.

In commencing the task before me I first inquire, what is the aim of dentistry? and quoting from the author under consideration, "by dentistry I mean to include every branch and department known under that name, and a dentist in the full sense of the term

* * * is one who understands and can practice each and every specialty of it." With this definition before us, I ask again, what is the aim of dentistry?

To this question I desire an answer that shall embody the truest and loftiest sentiment of the best men in it. To afford a livelihood to him who has chosen it as his vocation? To make money? To achieve fame? To exhibit the possibilities of special science? All these are answers involving a modicum of truth, but none come up to the level of what is required. Here is another: To conserve the well-being of humanity. But this is the aim also of Christian philanthropists. Something more explicit is necessary.

First and highest of all, the true aim of dentistry is to relieve human suffering and promote human health. An aching tooth causes suffering as does an aching head. Unrelieved suffering impairs the health. An alveolar abscess causes suffering as does an auricular abscess. If not relieved, the former will sometimes cause death, and the latter the loss of the sense of hearing. Decayed teeth interfere seriously with perfect mastication Imperfectly masticated food is a prime cause of indigestion. Dyspepsia with its long train of attendant ills ensues, and life is made miserable. The loss of the teeth renders mastication impossible, and necessitates the use of liquid or farinaceous foods, with insufficient nutrition as a frequent result, hence an impaired condition of health.

Pyorrhœa alveolaris makes the mouth sore, unclean, and by its pus secretions mixing with food, unhealthy.

Calcareous deposits secondarily, and lodged *residua* of dissolved food, partially decomposed, primarily, work an unhealthy condition of the mouth, manifested by foul breath, by turgid gums, by incipient or developed epulis. Result, impaired health.

Now, every one of these several vitiated conditions of the mouth is considered a specially appropriate field for a dentist. It is a dentist's legitimate work, generally recognized and admitted. I have been careful to include in this category none of the diseases of the oral cavity, whose legitimate assignment to the care of the dentist is questioned. This being so, a single glance will suffice to render the point I make clear to my hearers. A dentist is called to attend to each and all of these diseased conditions. Now note well his action.

In the case of an aching tooth, he applies a remedy for the express purpose of relieving the pain. The natural result of such relief is an improvement in health. In the case of an alveolar abscess, the treatment is directed to the special end of curing the disease and, as far as possible, of preventing its recurrence. It is not necessary to say that the condition of health is inseparably connected with the local difficulty and dependent upon the success of the dentist's treatment of it.

Nor is the ultimate aim any different when decayed teeth are to be filled, lost teeth superseded by artificial ones, diseases of the gums to be treated, calcareous deposits to be removed, or wrecked teeth to be extracted. These are only varying phases of one general condition requiring varied treatment. The condition is a lapse from health, and the practitioner is called in to restore that lapse. As the dentist is applied to in the several cases enumerated, the physician is called for in others. When the patient suffers from an aching tooth, the dentist is applied to; when from an aching head, he seeks the physician. An alveolar abscess comes under the dentist's hands; an auricular or lumbar abscess under the physician's. Imperfect masticatory machinery is brought to the dentist for repair; deranged or disordered digestive apparatus to the physician. Now in all those ailments which a physician is called to treat, what higher, what different end has he in view, or by what other motive is he influenced than that which the dentist has in view, and by which he is influenced? The end of both is one. The governing motive of both is one—*the relief of human suffering and the promotion of human health.*

I have said that this is the aim of dentistry; this position, I venture to believe, will be endorsed by my professional brethren. That is my standpoint.

I venture to believe, also, that the advanced step I have taken, in my consideration, will also be conceded, viz.: that the end and aim of the physician, as exemplified in the instances cited, are identical with the end and aim of the dentist. In motive and purpose thus far they are parallel.

Advancing along the line of analysis I come next, most naturally, to the allied fact (allied to what has just been urged, indeed, absolutely inseparable from it), that as the medical doctor requires education in order to be competent to treat a prolonged headache, or an auric-

ular abscess, or an impaired digestive apparatus, so does the dentist require education to fit him to treat the diseases of the teeth and contiguous parts which come under his care. And what kind of education? The same in kind as does the physician. Although the region in which his operations are confined is small when compared with the whole human frame, yet within it prevail the same laws, exists the same complex machinery, is found the same liability to derangement, the same need of the same treatment, and the same susceptibility to the same influences that are found elsewhere in the human organism, except that in this region they are more obscure, hence more difficult to understand, than in many other parts of the human body.

To fit him for his work as a dentist, in the full signification of that term as defined by the author of the paper under consideration, it is necessary that a man should have a knowledge of the constituent parts of the oral cavity and their physical relation to each other, viz.: the bones—their shape, size, structure, situation and union; the blood-vessels—their situation, comparative importance, connections and character; the nerves—their origin, connections, ramifications. The branch of study in which this knowledge is gained is called Anatomy.

It is quite necessary, also, that he understand the functions of these various organs and constituent parts; what they are expected to do when in health, and what effect upon adjacent or remote tissues or organs their impairment is likely to produce; to understand that the entire nervous system, for instance, may be thrown into disorder by a lesion in one remote part of it, and consequences the most serious be the result. Although not a gynæcologist, he should know that injudicious operations upon the teeth of a pregnant woman, may, and often do, result in miscarriage; that neuralgia may often be cornered and cured by certain operations upon the teeth, which, but for such intimate knowledge of the nerves and their relations and their influence, would never have been thought of. And that neuralgia may follow as the result of operations unskillfully performed, or ill-timed, or from methods unwisely employed. Here is a branch of study extensive enough for all one's time and all one's energies. It is called Physiology. Into it, to a certain extent, our perfect dentist must enter. And further, it is quite as necessary when the dentist meets with a disease in the

region under his care, and locates it, and determines the character and extent of it, and is impressed with the importance and possible consequences of its continuance, I say it is quite as necessary that he know how to treat it, what remedies to employ and how and when to employ them. And if he is to be the ideal dentist described by the author on the table, he should, nay, he must know whether the treatment indicated is to be topical or systemic, surgical or pharmaceutical, palliative or radical; and when he selects either, he must know why he chooses it rather than the others; he must know what to look for as the result of its employment, and when its further use is to be discontinued. What is this but Therapeutics? Limited, yes! *but therapeutics still.*

The anatomy of the mouth and contiguous parts is regional anatomy, but none the less anatomy. The physiology that concerns the dentist's field of operations may be called limited, but it is, nevertheless, physiology, and not so limited, either, as one might at first suppose.

And now it is fair, and it is time, to ask further—which of the learned professions requires, as a condition of fitness in its practitioners, a knowledge of anatomy and physiology and therapeutics? Does Divinity? Does law? Nay, but medicine does. And we have seen that dentistry does. It is superfluous for me to say, note the kinship. Your intelligence, gentlemen, has anticipated me, and drawn its own inevitable inference from the line of thought pursued.

The healing art is the parent of all systems of treatment of disease in the human body, whether it be an ingrowing toe-nail, a defective tooth, a diseased eye, or a disordered brain.

Even the "old farmer," in Dr. Kingsley's homely and not at all pertinent illustration, if by close observation or some study he had learned when and how to "open the boil, for one of his laborers, to let out the core," was, to just that degree, practicing the healing art. Nor should his crude but honest efforts to relieve human suffering subject him to ridicule, or be used to point a slur at a body of respectable gentlemen engaged in a respectable vocation. What would be the first exclamation the laborer or his friend would be likely to make after the "old farmer" had completed the operation and shut up the jack-knife which he had used in doing it? "Why, neighbor, you're quite a doctor." The rec-

ognition of the healing art as the parent of all efforts to relieve physical pain or cure physical ills, is immediate, and with all classes, learned or unlearned. And dentistry, as an organized system of treatment for some of the ills of the human body, is a legitimate child of that recognized parent, bearing upon it birth-marks, displaying characteristics that establish its relationship and make its denial of its parentage an absurd exhibition of pitiful and unbecoming pride, a pride that has no basis and is very belittling to its possessor.

Because dentistry is a specialty, it is none the less a profession. What has thus far been urged as to its kinship to medicine is all equally in support of its title to the name—"profession." An offshoot from general medicine, it must be a profession if medicine is a profession. The same sap flows in the branch that flows in the trunk, and though the branch should grow to dimensions exceeding those of the trunk, it would still draw its sap from that same trunk, would still possess the same qualities, bear and manifest the same nature.

Dentistry is a profession, not because "it is a vocation of beneficence." The work of the societies for the prevention of cruelty to animals and children is a vocation of beneficence. Dentistry is a profession, not because of "universal acknowledgment." Even universal acknowledgment would not make it a profession, and the writer in the same paper has already drawn the life-blood from this argument before it was presented, by saying that the medical fraternity assert that "dentistry is only a mechanical trade." Where does the "universal acknowledgment" come in?

I maintain that dentistry is a profession because of *its relation to medicine;* not because of its relation to "any art from plumbing to sculpture," which may be thought to "have its prototype" within its pale of operations. And what makes medicine—the parent—a profession, the same makes dentistry—the child, the specialty—a profession. Any gentleman can determine for himself what that is.

This proposition is not weakened by the assertion of the author that "the majority of dentists, even if they have the medical degree" cannot treat "the diseases of the family" as well as any "old housewife in the country." This is another illustration which, neither for its pertinency nor its elegance, finds any appropriate

place in an argumentative paper before a society of intelligent professional gentlemen.

What specialist, pray, practices general medicine? What dentist pretends, or is expected, to "treat the diseases of the family?" And why should the term "an old housewife in the country" be used to signify an uncultivated person of whom nothing worthy can naturally be expected? Is the country necessarily a place of the direst ignorance? Is the housewife, perforce, a mere scullion? Is it any reproach to a housewife to be old? And if, perchance, she be a "housewife," and be "old," and live "in the country," does she become thereby an appropriate foil to set off the incompetence of dentists to treat the diseases of the family? As well use a stage driver, who can oil an axle or fit a linch-pin, as a comparison to show the unfitness of a wheelwright to decorate the exterior of a coach with a paint brush.

Having established the relationship in point of motive, of end, of preparation, of nature, between dentistry and medicine (to my own satisfaction at least), and having built up something on which to hang a "therefore," I am prepared to reaffirn an assertion I have before made, that dentistry is a specialty of medicine. And having asserted this, which, I think, has been quite conclusively proved, I am now quite ready to go further and assert that dentistry is *more* than a specialty of medicine. It has widened its field. It has employed methods which, belonging to the mechanical arts, are still necessary to the execution of its purposes, its professional purposes. And when a dentist sees an object which he wishes to accomplish for his patient's good, whether it be reducing an irregularity in the teeth, covering with a plate an opening in the roof of the mouth produced by malignant disease, supplying lost teeth, elongating a partially erupted bicuspid, or constructing and hanging *in situ* an artificial velum, if he can sit down in his laboratory and with his own fingers make the necessary appliance for the accomplishment of the object, he is by just so much, the better furnished dentist, and not a whit less professional than if he had conceived the idea but was obliged to get some outside mechanic to do the work.

But, while this is true, it is not his mechanical skill which makes him a professional man. It is the knowledge behind the actual exhibition of the skill. It is the ability to originate the conception which is to be executed. It is the knowledge of the underlying

principles which are involved in the case under treatment. It is the understanding of the relation between the part affected and the whole organism, and the probable effect upon the whole of an operation upon that part, as gained by an acquaintance with the laws of physical health, of function, of adaptation, of healing. It is the ability to adapt scientifically the specific treatment deemed necessary, so as not to contravene those laws, but to invite their co-operation in securing a good result. This knowledge is acquired in medical schools, or in departments of study borrowed from medical schools, and embodied in the curriculum of dental schools.

There is no difference of opinion between me and the paper as to the fact that dentistry is a profession. What I have already advanced shows that. But this I aver : Just in proportion as we disclaim our relationship to medicine, and with disdainful stroke cut the ties which connect our vocation with the healing art, to that same degree do we cut ourselves off from the title of professional men. Nor will any amount of artistic talent, as displayed in the work of our hands, save us from being considered mechanics, and mechanics only—mechanics of a high order if you please, but mechanics still—and our vocation a trade. Are we ready for this ? I, for one, am not.

The man who devotes his life to the manufacture of porcelain teeth, or who constructs artificial dentures according to instructions, and after models furnished by another, and whose attainments are confined to that branch, may do his work most satisfactorily, most artistically, but he is not a professional man. He is a mechanic.

Let it not be thought that I disparage the vocation of a mechanic. By no means. I admire and respect mechanical genius as much as any other man, and whatever of that talent I possess myself, I value most highly. But I am endeavoring to call things by their right names in this paper, and I do not propose, on the one hand, to call a profession a trade, though it include, among other things, that which, pursued alone, would be a trade; nor, on the other hand, to call a trade a profession, though the artisan be a man of more cultivated mind, finer artistic taste and greater manipulative skill, than he who owns a diploma. Let each stand on its own bottom. Neither seeks a conflict. Let us not then force one. Neither can I see any reason or wisdom in boldly antagonizing medicine, nor the fraternity of its practitioners. Why institute an

invidious comparison? Why force an unsavory issue? What is to be gained? Nothing but ridicule.

It is no argument in favor of the bold utterance of Dr. Kingsley to say that dentists desire "to be considered medical specialists" that they may "stand well in society," and derive a little "dignity" by reflection, from the noble profession of medicine. Such a statement is an unkind slur upon the dental profession, and in its name I repel it. The competent dentist desires no meretricious dignity and no borrowed standing. He asks the standing, and an acknowledgment of the dignity which of right belongs to him, by virtue of his own worthiness of character. Nor need he ask it. It is accorded. A noble character, lofty attainments, faithfulness to duty, these bring their own recognition. The close student is known to be a student, and respected as a student, and when the products of his study are revealed and seen to be of value to the world, his reward and recognition are sure.

The man who is ambitious of fame, if he is willing to work for the good of man, or the advancement of science, need not seek to connect himself with an already honored vocation, to secure it. It will come to him; it will find him out. Such fame is valuable, more so than that fame, or rather notoriety, which comes to a man because of some conspicuous position of antagonism in which he has placed himself.

Neither the incompetent hanger-on to a respected vocation, nor the opinionated declaimer of his independence of it, can hope for permanent fame or sincere regard. The flimsy pretense of the former and the alarming state of inflation of the latter, will each be understood. The enlightened public does not affect either parasites or iconoclasts. I say this in no invidious sense; I speak what all may recognize to be the truth.

The question of participating in the International Medical Congress, to be held in this country during the present year, is disposed of in the paper under review in a few curt sentences, breathing a spirit and a conceit which, to every unprejudiced reader, must seem out of place, unbecoming and uncalled for. What offense has been put upon dentistry by an invitation "to form a section of that Congress," it would be difficult to name; and, indeed, nothing but the diseased eye of jealously or the hypersensitiveness of overgrown pride could perceive any. Instead of an offense it

seems a very proper courtesy, and if we are gentlemen, and accustomed to the courtesies of life, it becomes us to maintain that character by meeting courtesy with courtesy.

In considering a question like this, it is well to lay aside any private enmities or prejudices which might warp our judgment and divert our thoughts from matters to men. We may not just relish the form of the invitation, or the men named for prominent positions on committees, or some other detail, but as gentlemen, as professional gentlemen, as members of a profession for which is claimed such exalted eminence, we should not be affected by such trifles, and on their account refuse our co-operation. Much less should we return sarcasm and bitterness for recognition and courtesy. It does not look well, and I am unwilling that our profession should be amenable to the charge of maintaining so ungracious a bearing, through the agency of one of its members, without a protest. It may be, and it may not be deemed best, to go into this Medical Congress. That is quite a distinct matter, to be decided wisely, and after all the circumstances have been well considered. As to our having "no business there" as "an independent profession," I quite agree with that statement. We have no business to go there boastfully assuming that we are an independent profession, and so placing ourselves in direct antagonism with our host.

That we should be out of place, as dentists, depends on circumstances. If we cannot, as dentists, enjoy the society of cultivated men, we should be out of place. If we, as dentists, do not know how to conduct ourselves in such society, we should be out of place. If we are so filled with self-importance that nothing but what we say is considered of any value, then we should be out of place, for we shall meet many gentlemen there who do not think so. But if we are gentlemen, if we realize the aim and character and importance of our vocation as one among the systems whose end and aim are the promotion of human health, if we are possessed of enlightened common sense, then we shall not be out of place when we take the position which they who invite us think it right for us to occupy.

Of one thing, however, we may be assured; if a section of dentistry is formed in that Congress, any credit that shall come from it to our profession will come because it is deserved, and not by favor of the medical fraternity. They will not commend what is worthy or unworthy of commendation, simply because it is con-

nected with their Congress. Medical men are men of judgment and men of honor. If a thing is good they know it and will say so, and if it is bad they know it and will not pronounce it good. Therefore, a dental section in a Medical Congress will stand on precisely the same basis as if it stood alone, viz.:—on its merits, and on these only. There is no need of fearing that our profession will receive a less meed of praise than it deserves, nor that its extraordinary attainments will be used to lift the parent art, medicine, to a loftier altitude. Oh, no ! the most conservative gentleman need have no alarm. We shall stand just where we belong, or if we fly at all, it will not be by hitching on to anyone else's kite, but because our own is so well shaped, and so nicely balanced, that soaring is as natural to it as to the even-winged bird.

If the prominent gentlemen to whom this matter of a dental section has been entrusted shall find time in their busy lives to create and equip it, though I may not be able to assist them in person, I shall wish them every success, and shall feel confident that under their wise and efficient management the section will be a credit, both to the Congress of which it shall be a part, and to the profession which it shall represent.

As to an International Dental Congress, if in the future it shall seem wise to convene such a body, and the motive be the interchange of matured views, the revelation of discovered principles, the honest discussion of methods, the introduction of new ideas, all to the end of promoting greater efficiency, of affording mutual instruction, mutual encouragement, and as a result, of attaining an advanced position for dentistry, then I shall raise no objection to it, for the motive will be worthy and the end desirable. But if the chief aim of such a Congress shall be to attract to ourselves "the eyes of the whole world," while we spend our time and breath in praising and admiring ourselves, then I shall be opposed to it as undignified, and unworthy of professional gentlemen.

Let dentists honor their profession; it is worthy of it. Let them advance along the lines of investigation as far as they can. Let them bend all their energies to the end of making every detail in operation reach the highest degree of excellence possible. Let them study, experiment, analyze, that occult things may be brought to light; that hidden laws may be revealed; that obscure relations may be understood; that greater efficiency in substituting artificial

for natural organs may be attained; that the lines of beauty in the human face may be more perfectly preserved. Let them place their ideal high, nor be content till, in place of a haggard, sunken countenance, a toothless mouth, diseased gums and impaired health, brought into our offices by their unhappy possessors, there may go out therefrom a well-rounded face, whose features shall have been restored to symmetrical outline; a well-ordered set of masticating organs, their naturalness or artificialness known only to the possessor and the dentist; a healthy mouth, everything in order for the proper preparation of the food and for the production of the quickly succeeding condition of good digestion; cheerful spirits; in a word, good heath.

Let dentists strive for such ends, and they will not only be useful, but noble men; they will not only attain eminence and elevate their vocation, but they will find their heads and their hands so full of thought and act that there will be no time, as there will be no need, to look around for "recognition," for "standing," for confession of "dignity." There will be no time, as there will be no need, to argue upon the claim of dentistry to the name of a profession. There will be no time, as there will be no need, to search for a balance which will exalt dentistry above medicine when they are weighed against each other. There will be no time, as there will be no need, to labor for the creation of a board of the erudite of the land, who shall by formal edict, proclaim to all the earth that henceforth dentistry is a distinct profession, disconnected with and absolutely independent of every other.

When the ultimate limit of the capacity of this generation shall have been reached, and our successors, taking up the science of dentistry where we leave it, shall carry it on to degrees of efficiency now unrealized, and exhaust their powers upon it till it stands a wonderful product of active, human intelligence, a marvel in its resources, its achievements, its beneficent possibilities, even then, inevitably then, unhesitatingly then, will the keen eye of the impartial critic detect the unbroken line of connection, the vital, umbilical cord, which, running back through all the variations of direction and apparent diversity of operation, shall be seen to be attached inseparably and forever to the healing art as its legitimate parent, and the instant verdict shall be—THIS IS A SPECIALTY OF MEDICINE.

COURTESY AMONG DENTISTS AT PROFESSIONAL MEETINGS.

An Annual Oration Delivered Before the American Academy of Dental Science, Boston, Mass., Nov. 10th, 1886.

BY J. N. FARRAR, M. D., D. D. S., NEW YORK CITY.

Mr. President and Gentlemen:

It is with misgivings that I attempt to speak upon a subject from which people shrink, because I do not feel able to put it as forcibly as it deserves. But I esteem it a duty to ally myself with others in the battle against error, and in the support of principles necessary to the advancement of the profession, notwithstanding it may be unpleasant.

I trust that my remarks will not be taken in any other than a kindly spirit, as they are intended only for general good, through the influence of my hearers, wherever they may go. I say this because I do not wish it thought that references are made to this Society, concerning which I have never heard aught but good.

Although I may offer nothing new, I hope, by pointing out some practices, to place the matter in such a light that the motives behind them may be recognized whenever present, with the view of correcting evils that would make the profession blush with shame if they were publicly set forth by some prominent writer of fiction. I refer to the objectionable methods that have been too frequently practiced tending to hurt personal feelings, or injure personal standing. It is not my intention to dwell upon the science as a science, or as regards professional courtesy in and through business, or the damaging and paralyzing influence of political "wire pulling" at elections, but my remarks will have reference more especially to graver conduct; the crippling and assassination of genius, which has been practiced for years in the meetings of societies: not that other professions are exempt from this blight, but that ours is the one with which we have principally to deal.

Sometimes this is conducted in an open warlike manner, at others more in the style of intrigue under the guise of "love for truth;" not within the limit prescribed by the spirit of Mosaic doctrine, "a

tooth for a tooth," but too often in the spirit borne by the hawk toward the innocent dove; unlike the good teacher, who seeks to draw out the latent power of the listener's judgment by kindly criticism upon the subject, the critic too often indirectly aims his shafts at the speaker personally, with intent to injure his popularity.

It may be thought that the only improvement dental societies need in their meetings is to talk less and say more; but, however true the saying,

> "They never taste who always drink,
> They always talk who never think,"

it is not enough for the cure of this evil.

The influence of courtesy is wider and reaches deeper into business, as well as social life, than is commonly supposed. He who recognizes favor merely on one side of a business transaction, fails to understand not only what constitutes honor, but the commonest principles underlying society. A merchant who does not know that his profits come through a form of courtesy of the purchaser, cannot understand why he should show courtesy to an honest man who has been prompt pay for years, by not crowding him in the time of distress. One who says, "I gave him his money's worth, therefore he has no claims upon me," should not feel hard toward an old customer if he should leave him and patronize another who has more humanity in his nature. Just so is it in professional life. He who shows no courtesy by making distinction between the conditions of patients, and who plays "the spider and the fly," and, taking advantage of their confidence, presents exorbitant bills out of all proportion to the value of service rendered, ought not to be surprised if, in the days of his gray hairs, he finds himself in want of funds, friends and business. So he who has no higher aim in discussion on scientific subjects than personal aggrandizement at the expense of others, not only is a "millstone that clogs the wheels of progress," but he grinds himself out of recognizance.

Unlike the people who lived in the days of Homer, when dark ignorance was the rule, most people are now able to detect the motive. While in olden times the masses, attracted by a few brilliant intellects, like meteoric lights, were led by them, the difference between the leaders and the led is not now so great. Instead of one or two bright stars here and there, there are now so many that this

world seems more like a torchlight procession marching in grand array. A few tyrants still exist; but their thrones are dissolving away by the light of truth thrown upon them through the efforts of sincere and modest scientists, the class most loyal to the interests of the profession, and who would often do more if encouraged.

Born and reared not far from this city, in a town where public debates were common, and were conducted by rules of strict courtesy; where it appeared to be the fashion and desire to try to outdo one another in politeness, and to take no notice of those who dared show ill-feeling; where there seemed to be an understood though unwritten law that, to speak unkindly of others, whether in their presence or during their absence, was to dig one's own grave—was it strange that I should have been amazed when I went forth into the world and saw these principles violated so frequently as to cause such fear in the more timid minds, that they prefer to remain silent rather than to place themselves in the current of personal abuse of those who seem to feel that the strength of their citadel depends upon destroying that of others? Of course, since people differ in their dispositions, allowance should be made; but for the violation of the commonest rules of courtesy, there can be no reasonable excuse.

There are those who are gentlemen under all circumstances, wherever found; who do not think that, because others may conduct themselves improperly, it is a reason why they should; there are those who appear like gentlemen toward everybody in society at large, who carry none of it into meetings to show toward their brethren in discussion;—everything nice to the outer world, and even toward members of the profession individually met, but who forget that it is equally good policy, if for no higher reason, to show the same disposition in society meetings.

There are those who quarrel for the love of it, and who like to meet their equals, and there are those who delight in finding a timid person to climb upon, no matter how talented he may be. Such pugilistic spirits do not always appear to know when they are defeated in argument. They love debate, but cannot set themselves a-going without first throwing a club; like the boy who slings a stone at a cow to create an impression in his favor, and then rushes on.

These who delight in this appearance of altitude, and think it necessary to first silence those who presume to speak upon subjects

on which they have thought themselves authority, are often paradoxical in their nature. I once knew a person of this kind, who, after shamefully abusing an essayist by belittling him, subsequently found his equal in the essayist, and being severely punished, in a second speech made eloquent remarks upon the foolishness of indulging in personalities in scientific meetings.

If they who fight openly are reprehensible, what shall we say of those who seek to destroy in a more stealthy manner ; who, under cover of suavity and apparent politeness, carry the insinuating dagger ?

Some work simply to destroy, without disposition to rebuild ; others seek first to lower the structure of the opponent to a level with the ground, and then to rebuild for themselves. But to build a superior structure alongside that of another, so that the difference can be seen, is proof of superior ability, much more persuasive in its influence, and its fairness commands the respect of everybody, even of those who are not convinced. There is no such powerful means of progression towards personal elevation, as through a spirit of generosity and courtesy, shown in respect for the opinions of others. He who to himself would have courtesy shown, should first himself show it to others.

Courtesy is of two kinds ; natural, and artificial. When courtesy is the expression of generous refinement, it may be said to be the perfection of gracefulness. But courtesy artificially attained is better than swinishness, for the same reason that deformity is less objectionable hidden than if exposed. Exposed mental deformity is even more objectionable than exposed physical deformity.

It does not follow that to express one's adverse views with effect, it must be done in a pugilistic manner. Politeness is a bond of good fellowship, and begets friends ; while selfishness embitters the social atmosphere, and freezes the tender impulses. There is no spectacle so grand and noble as two opposing debaters facing each other as gentlemen, vying in politeness as if endeavoring to outdo each other in courtesy, though not descending to flattery. Adverse criticism, even if a little harsh, is more acceptable to a sensible opponent than treacle. I have known great undertakings, and elaborate preparation for scientific discussion made total failure by a few garrulous, quarrelsome, omnipresent spirits who consumed the time on unimportant things; such as parliamentary trifles: consum-

ing time that might have been used to far greater advantage in the scientific discussion, for which the meeting was called, causing disturbance of mental equipoise, as shown in loss of interest and bitterness of feeling.

Understand me, I do not advocate ignorance of parliamentary rules, but to make the scientific object of the occasion subordinate to trifling and unimportant technicalities, is not conducive to the growth of scientific knowledge, nor is it satisfactory to the majority of the members.

Some might say, to guard against this drawback more of the better quality of material is necessary. That, to strike at the root of this evil, greater discrimination must be used in the selection of pupils to the profession, which implies more natural refinement and higher scholarship ; a quality of men who would set their heel upon such conduct. Undoubtedly could the Utopian view be carried out, it would go far to remedy the evil; but our present object is to doctor ourselves, and then, having healthier and better blood, to try to infuse it into others.

Probably there is no better way of preventing this descent to personalities, than by the exercise of determination by the President; and I doubt if there is a society in this broad land that would not, as a whole, stand by him when he exercises it. Bullies make poor soldiers, and cower before legal power.

Conducted in accordance with these principles, a society will grow, socially and scientifically ; but, in the proportion that the meetings fall below this standard, in that ratio will the righteous indignation of popular opinion sooner or later express its disapproval to such an extent that genius will absent itself, and the society crumble into decay through apathy.

There are other methods of committing this crime, as by boycotting the speaker by remaining away from the meeting, or being present with the sole view to destroy him through his subject by drawing his thoughts away from his theme ; asking questions not relevant. Boycotting, however, is so obnoxious to the American that little need be said further than that this spirit, though not so rife as in former years, is not entirely extinct.

Probably the most cowardly way of all is the indulging in slurring personalities in public meetings against an absent party, who cannot defend himself. One of the most peculiar ways of making

an attack upon an absent person, whose name cannot relevantly be dragged into the discussion of the meeting, is to have an understanding with some member of the society to call upon the enemy to express his views upon the subject in which the absent party is especially interested.

To assume superior wisdom, and to endeavor to overawe these pretenders presuming upon the ignorance of the audience, sometimes make bold statements on abstruse and uncommon phases of subjects, —assertions, the truth or falsity of which would require a year of hard experimental study to determine—this is a trick that I have known to be practiced more than once with wonderful success. Sometimes, however, a David rises up, and, with the fruits of patient toil, calmly slays the misleading hypotheses of such would-be Goliaths.

Having confined my previous remarks to the conduct of person to person, we now may come to the acts of members taken collectively, which the following incident may illustrate. In speaking with a prominent member of our profession regarding a certain measure endorsed by his society, he was asked how they could commit so unjust an act. His reply was this : "Probably there was not a member present at that meeting, who, if he had acted from his own heart, would have voted for the measure ; but you know that sometimes men collectively dare to do things that individually they would be ashamed of."

To criticise the views of an essayist in an offensive manner, casting aspersions upon his mental ability, under cover of the pretense that the society will be held responsible for the influence his views may have upon the profession at large, if made public through the press, is probably one of the weakest excuses for displaying prejudice. The public generally gives credit to people for what they are worth, and does not place much stress upon the whereabouts of the speech. If erroneous views are set forth in societies that publish their proceedings, would it not be as well to leave that matter to the discretion of the editor and his basket, rather than to make rancorous speeches that injure the reputation of the society more than the essayist? It is bad enough to fight on one's own account, but for a member to place a society in the light of Balaam's friend, to ride to battle on, is not conducive to the growth or the popularity of the society, or to the advancement of the profession.

Not long ago a member of high standing, a man who is in every respect a gentleman, one whom you all know, after having read a very scholarly paper, was attacked in a bigoted manner on a point not at all relevant to the subject; and, in the "star-chamber method," was ill-treated in a manner not at all creditable to any society. This essayist afterwards said to me that he was always very glad to be the object of honest, intelligent criticism; but when criticism comes in such a shape to an invited guest he could not forget it, nor would he stoop to strike back in a spirit of wrath. This is not an exceptional case. I have known many such, and have lived long enough to see decay set into every society that tolerated it.

When a man is invited to speak before a society, he naturally expects to be treated in a gentlemanly manner, even though his ideas may be at variance with those of some, or even all, of its members. The value of such occasions often depends upon the remarks subsequently made by others in reply to the speaker; but courtesy demands that respect should be shown, not only in the criticisms, but also by absence of low grumblings, loud whisperings, or any other means of making a noise with intention to disturb the speaker, or to attract from him the attention of the audience. Silence and close attention are absolutely necessary to secure the best efforts of some speakers; especially if they know that, among the audience, there are those who do not sympathize with him. There speaks in New York every Sunday, one of the most eloquent orators of the nineteenth century, who is so easily thrown from his equipoise that he requires the outer door to be locked when he commences, that he may not be disturbed by stragglers.

Criticism is the life of a scientific meeting; but if I may be allowed to quote from myself:

> Virtues, by proper use,
> May become vices by abuse.

Personal abuse is not criticism, nor is faultfinding criticism; but to differ from one's ideas upon the subject and to show why, when done in a kindly and candid manner, is agreeable to an audience, and not objectionable to any right-minded speaker. By right-minded I mean more than having knowledge of the fact that, an excessive flatterer is a mercenary person, and one who cannot be relied upon in times of adversity, nor when character is wantonly attacked behind the back, but one whose love for truth and desire for the advance-

ment of knowledge is closer at heart than some pet hypothesis or personal aggrandizement. The former comes from a spirit of generosity; the latter, jealousy. One is the open helping hand; the other, a clenched fist, disputing the right to step on ground it considers its own.

Brotherly love, shown in the courteous examination of a subject, stimulates freedom of intercourse, cultivates humanity of feeling and keeps down the pugnacious element. A method that builds up the truth with evidence, so that it looms above all surrounding error, instead of the old feudal method of attaining superiority through the destruction of others. Compeers make compeers by kindly feelings, through mutual support; while abuse kills the growth of the abuser by isolation, as much as if he were upon an uninhabited island, unknown, living to no purpose superior to that of the vegetable. No man can become great of himself alone, and without the sympathy of his fellows.

Admitting that all have their friends, and everybody of any account his enemies, and that to be a gentleman under all circumstances is the privilege of all; let us with a spirit of gentleness toward our brethren of different opinions, our actions showing that the expression of different views stimulates thought and a disposition to learn, let us, shoulder to shoulder, move on with solid front, with higher aims to higher ground, that we may command the world's greater respect.

THE HERBST METHOD OF FILLING TEETH.

BY C. F. W. BÖDECKER, D. D. S., M. D. S., NEW YORK.

Since the appearance of my last article on this subject, which was published in the INDEPENDENT PRACTITIONER for August, 1885, this system has been considerably modified, and to meet the numerous inquiries which are constantly coming to the writer, he has deemed it necessary very briefly to recapitulate its general principles. The advantages claimed for it are:

1st. Better adaptation to the walls of the cavity than it is possible to obtain by any other system.

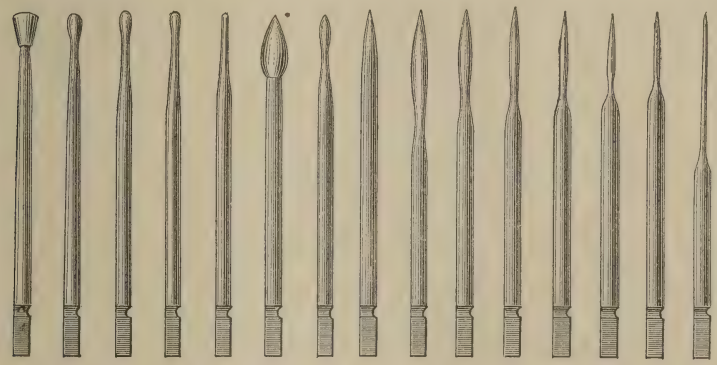
2d. The saving of about one-half the time required for other methods.

3d. Some of the most difficult operations (as proximate surfaces of the molars and bicuspids) by this method are very easily performed.

4th. Gold can be perfectly adapted to the thin walls of enamel without danger of fracture.

5th. The introduction of gold, when done by this method, is much less annoying to the patient, and less laborious to the operator.

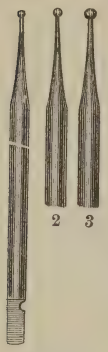
The instruments used for this method have been very much modified; they are mostly ordinary smooth burnishers, of which there are three sets; one set of engine points, one set of hand instruments,



(Fig. 1.)

and one set of bent hand instruments. The two former were designed by Herbst, the latter by Dr. Frank Abbott. Of the old set of steel engine instruments (see Fig. 1), only a few are now employed, although we may meet with cases in which all can be used. The most important of them is the roof-shaped instrument, No. 5, of which there should be several sizes. These can easily be made out of a broken bur, as follows: The broken instrument is put in the hand piece of the engine, which, while rotating rapidly, is ground upon an Arkansas stone, or sandpaper, No. 1. The instrument should lie obliquely upon the stone or sandpaper, like a pen in writing, and be quickly moved, drawing it from one side to the other.

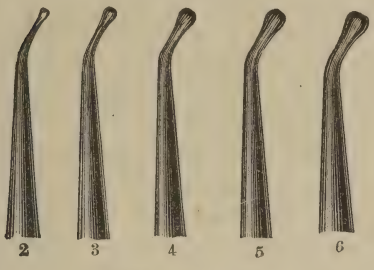
The instruments Nos. 2, 3, and 4, are but seldom used for gold fillings. The larger instruments, Nos. 1, 2 and 6, are mostly intended for the use of amalgam and tin. The pointed instruments, Nos. 7 to 15, are used for finishing and condensing the edges of proximate fillings. To this set I have added three very small, round points, in shape resembling a round cavity bur. They are designed for the use of small proximate cavities in incisors, and to me have proved of great advantage. (See Fig. 2.)



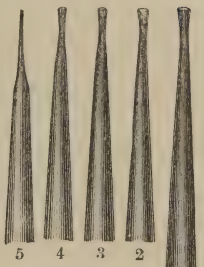
(Fig. 2.)

Much more serviceable than steel rotating instruments are those made of agate, blood-stone or garnet. The advantages of stone over steel instruments is in the hardness of the former, which prevents the coherence of the gold to them. The former, therefore, may be run at a high rate of speed, and under considerable pressure, without perceptibly heating, and this permits the much more perfect condensation of the gold. Consequently, we observe that the surface of a gold filling, which has been condensed by means of an agate or garnet instrument, is very much harder than a filling which has been inserted by steel points. But a great drawback in the use of stone instruments is their liability to fracture. Herbst, while in this country, exhibited some agate points which had been set in such a manner that only about one thirty-second of an inch of the stone protruded from the steel mandrel, and they would withstand considerable pressure before breaking. These stone points, which in form somewhat resemble the steel instruments, Nos. 2, 3, 4, and 5, of fig. 1, are intended to be used for direct pressure, but for larger surfaces Herbst has of late employed round agate or garnet beads fastened upon a mandrel with sulphur, and these are intended to be used for lateral pressure, especially in finishing grinding or labial surfaces. Stone points should not be polished, but roughened upon a corundum stone, while rotating in the engine.

To secure a better union between the different layers of gold when stone instruments have been employed for condensing, the surface of the gold should be roughened by means of a serrated hand plugger, for which purpose Herbst employs a freshly broken excavator.



(Fig. 3.)



(Fig. 4)

The hand instruments designed by Herbst, (Fig. 4) are five in number. Four are pear-shaped and one is a very fine roof-shaped instrument. Nos. 1, 2, 3, 4 are intended to bring the gold to its proper place before the engine instruments are employed. No. 5 is an exploring instrument, which is to be pressed over the surface of the gold, especially the first layer, to discover the imperfectly condensed places.

Dr. Abbott's set (Fig. 3) is composed of bent burnishers, for those places which a straight instrument cannot perfectly reach.

One of the essential rules for filling by the Herbst method, is the conversion of all complicated cavities (such as proximate ones) which possess but one, two or three lateral walls, into simple ones (such as cavities involving the grinding surfaces of molars, and having four lateral walls), which is accomplished by the application of a proper matrix. The matrices used for this purpose are either made of steel, German silver, wood or shellac, or the Jack matrices may be employed. For the proximate surfaces of molars and bicuspids should be employed, if practical, either the German silver band matrix, the forms devised by Dr. Louis Jack, or a piece of watch-spring. The German silver band matrix can be very quickly made as follows: A piece of this metal, No. 32, about one inch in length and as wide as necessary, is bent around the tooth to be filled, in such a manner that the ends of the metal come

to the buccal surface of the tooth. It is then firmly compressed around the tooth by means of a pair of pliers, made for that purpose. The ring is withdrawn from the tooth, a little soldering fluid (solution of chloride of zinc) applied, and over the point of an alcohol flame it is united by tin solder. If the tooth to be filled stands alone, the German silver matrix must be strengthened, either by soldering a thin brass wire around it, or by flowing tin solder upon the outside of the matrix wherever strength is required. In soldering, great care must be exercised that no tin runs to the inside of the matrix, especially that part which faces the cavity to be filled, for if, during the introduction of the gold, the tin is touched by the rotating instrument, some of it will be incorporated into the filling and impair the cohesion of the separate layers of gold. It is also of great importance to clean the matrix thoroughly after soldering, which can best be done with the dental engine, by means of a piece of cotton wound around an old engine bur dipped in moistened pumice stone. When this form of matrix is employed, it is advisable to prepare it previous to excavating the cavity, for the contour of the tooth can thus be preserved much more easily.

The depressed matrices devised by Dr. Louis Jack are sufficiently well known to require no further description. The watch-spring matrices are made out of a piece of watch-spring saw, such as may be obtained from any of the dental depots, in the following manner: A piece of saw, about half an inch long and as broad as the cavity is deep, is cut off and heated over a spirit flame until it is dark blue. The points of the matrix which are designed to rest on the cervical edge of the cavity should be well rounded off, that in cavities extending under the gum it may be pushed down without injuring either the lingual or buccal portion of the gum. The lateral ends of the matrix must be bent around the lingual and buccal portion of the tooth to be filled, like a clasp. When thus prepared it may be secured by one or two wedges of wood, or ordinary pins, inserted, one from the buccal the other from the lingual side. These wedges should be placed near the gum, between the matrix and the adjoining tooth, firmly pressing the former against the edges of the cavity. In adjusting a matrix care should be observed that in all mesial cavities it does not quite reach the grinding surface of the tooth, or it will obstruct the entrance to the cavity. All the steel matrices may be saved and used many successive times. When two

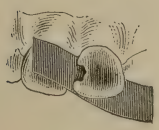
cavities in bicuspids or molars face each other, if the former plan does not answer, the matrix, after it has been placed in position, may be secured by filling one of the cavities with cotton or shellac.

For filling cavities in the proximate surfaces of the teeth, when they are opened from either the labial, the buccal, or the lingual side, we may employ, as a matrix, a piece of thin steel spring about four to six inches long, and one-eighth to one-fourth of an inch wide. Across one of the ends of this spring a piece of German silver or brass tubing may be fastened with tin solder, in such a manner that, when the spring is in position between the teeth to be filled, the tubing will prevent it from being pulled through. In other instances, one end of the steel spring may be fastened into a small piece of shellac, and while this is yet in a soft condition the whole may be pressod into the desired position. This form of matrix is especially applicable for teeth with large crowns and narrow necks, such as lower bicuspids, when the steel spring without the shellac would impinge upon the gum. This steel spring may also be used as a protection to a neighboring tooth during the preparation of the cavity.

In some instances, where the lingual walls of upper incisors, to be filled from the labial surface, are not broken away, we may employ as a matrix a piece of German silver about one inch in length, and wide enough to completely cover the cavity in the lingual surface of the tooth to be filled. Insert it between the proximate surfaces of the incisors containing the cavity, and bend one end of it so as to cover the cavity in the lingual surface; the other end is bent out of the way, over the labial surface of the adjoining tooth. (See Figure 5.)

(Fig. 5.)

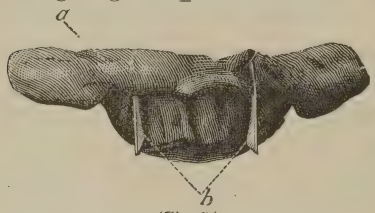
If, on the other hand, we intend to fill a cavity from the lingual surface of an incisor tooth, the matrix must be reversed. (See Fig. 6.)



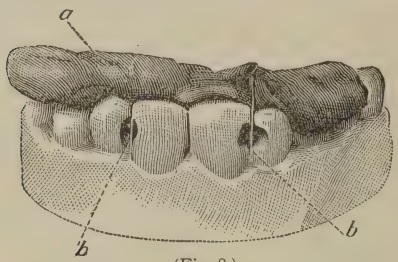
(Fig. 6.)

For filling the proximate surfaces of incisors when their lingual walls are much broken, as well as in contour operations, a matrix of shellac is employed, which may be made in the following manner: A piece of shellac, the size of a large walnut, is warmed over an alcohol lamp to the consistency of putty, and after the rubber dam has been adjusted, this is pressed against the lingual wall, extending a little over the

cutting edges of four or six of the teeth. After it has become hard it is again removed from the mouth, cooled in water, and a small piece of steel spring warmed over the flame of an alcohol lamp is inserted in the shellac at the place corresponding to the proximate surfaces of the tooth or teeth to be filled, and, while yet warm, the matrix is replaced in the mouth and adjusted as required. The piece of steel spring must not quite reach the labial surface of the tooth, as it may offer an obstruction to the entrance of the cavity during the introduction of the gold. (See Figs. 7 and 8.)

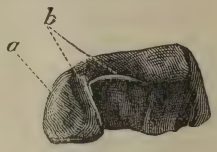


(Fig. 7.)
Representing a shellac matrix with two pieces of steel spring (*b*) inserted.



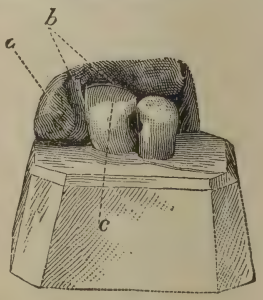
(Fig. 8.)
The same matrix when in situation. *b b* steel springs.

The matrices used for contour operations of incisors are made in a similar manner, but besides the steel matrix of the proximate surfaces, an additional one should be inserted corresponding to the cutting edge of the tooth to be restored. (See Figs. 9 and 10 *b. b.*)



(Fig. 9.)
Shellac matrix for contour operations.

During the introduction of the filling material, the gold, which (when unannealed) apparently shows no signs of cohesion, working as soft as tin foil, when burnished, becomes somewhat cohesive. A satisfactory explanation of this fact has as yet not been given by any one, and although this property will be observed in the gold from every manufacturer, Wolrab's German gold possesses it in a very marked degree.



(Fig. 10.)
The matrix in position after the introduction of the gold. *a*, shellac; *b*, steel springs adjusted against the cutting and proximate surfaces of central; *c*, gold filling.

The forms of gold best adapted for this method of filling are very soft cylinders (see Fig. 11), especially in the beginning of the operation; in the middle and upon the surface of a filling any preparation may be

employed, although for large surfaces heavy foil (Nos. 30 to 60) applied in narrow strips gives the best results. If foil is used for the first layers of the operation, Nos. 3, 4 and 5 are the best for the purpose. The leaves are cut into halves, and rolled into a rope between the fingers, or with a napkin, and cut into pellets of required length; or the sheet may be divided into squares measuring from one-half to one inch, which, by means of a pair of foil tweezers or the fingers are formed into pellets. The foil, as well as the cylinders, should never be annealed when used in the first layers of the cavity, except it be a contour operation.

(Fig. 11.)

The main rule to be observed in the starting of a filling is, that the first layer must be sufficiently large, so that when condensed it will lie securely in the cavity without being supported by an instrument. When too little gold has been put into the first layer, or when a number of too small cylinders are used and an attempt is made to condense them, the gold will roll about under the instrument and become too hard to be again adapted to the walls and edges of the cavity. The same condition will be observed when the first hand instrument used in condensing the gold has been too small. In very large and flat cavities containing but little undercut, the first layer of gold may be condensed by means of cotton, as follows: For a large cavity, introduce from five to eight large, soft gold cylinders, without attempting to condense them. A piece of chemically pure cotton, as large as the cavity will hold, is then inserted in the cavity, and, by means of a rotating burnisher in the engine, it is pressed into every part of the cavity. After the cotton is removed, the gold is further condensed into every depression with agate points.

The Herbst hand instruments (Fig. 4), while pressing hard upon the gold, are rotated in the hand about one-half or three-quarters of a turn, but the Abbott instruments are merely moved from side to side. By a rotary motion the gold is much better condensed than by simple pressure. Before the hand instruments are used, they should be rubbed upon a piece of No. 1 sandpaper. After the gold has been thus condensed, the perfect adaptation is obtained by a roof-shaped point, made of steel or agate, in the engine. After the instrument is passed over a piece of sandpaper and is perfectly clean, it is, while rotating, pressed firmly upon the gold, con-

densing it thoroughly into every depression of the cavity. In condensing, this instrument should not be held upon one spot, but be moved around, and especially along the edges of the cavity. In using steel points, care should be taken that the engine is not run too fast, and that the burnisher, while in motion, is not allowed to be in contact with the gold longer than from five to ten seconds, lest the gold be heated to such an extent as to cause discomfort, or even great pain to the patient. When the first layer of gold has been thoroughly condensed with the roof-shaped instruments, the hand instrument No. 5 (Fig. 4), while rotating, is pressed firmly around the edges and depressions of the cavity. If this makes any deep pits in the gold, it proves that in these places it was not perfectly condensed, and a smaller roof-shaped instrument than that used in the first instance should be employed in the engine to condense these places. All deep pits present in the layer of gold should now be filled up with very small gold cylinders, and thoroughly condensed until the surface of the gold is even. If stone instruments have been employed for condensing, the gold should be roughened by a serrated hand plugger (a freshly broken excavator), or a rotating steel point in the engine, before another layer of gold is added. All the succeeding layers of gold are manipulated in the same manner, except upon larger surfaces, where we can employ the garnet or agate bead with lateral pressure, when heavy foil (Nos. 30 to 60) will be found to give better results. This may be packed upon the other layer of gold in single strips, burnishing every piece down by means of the rotating instrument, while directing the foil by means of a pair of tweezers in the same manner as in packing heavy foil by the electro-magnetic or mechanical mallet. In these instances, when the garnet or agate bead has been made rough, we need not use the hand instrument to roughen each layer of gold. Herbst, however, introduces a rather thick layer of heavy foil first, and then uses the agate or garnet bead; but in these instances considerable pressure is required to condense the gold perfectly. In some situations, as in buccal walls of molars and bicuspids, when the gold cannot be condensed by direct action of the instrument, the right angle attachment, or an Abbott hand instrument should be employed.

As this method of filling teeth—like every other—requires some practice, the writer deems it safer for a beginner to finish the operation in the old accustomed manner.

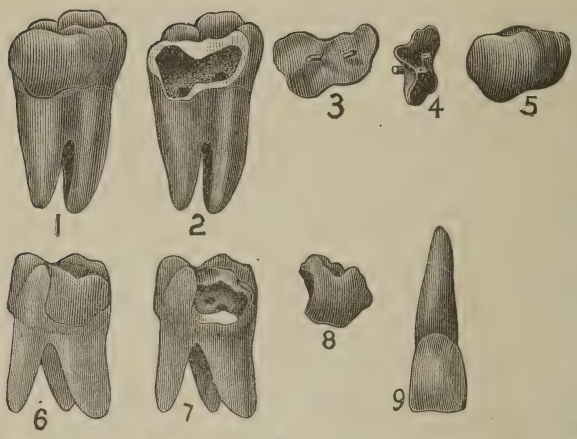
Tin is introduced in the same manner as gold, either in the form of foil or as Robinson's metal. Nos. 4 to 6 foil is cut in half, and is made into a rope with the fingers or a napkin, and cut into pieces of the desired length, which ought to be used when prepared.

Cavities in front teeth, which it is intended to fill with amalgam or oxy-phosphate, may be lined with a thin layer of gold, which will impart to the thin wall of enamel a very life-like appearance. The method is as follows: A large and very soft gold cylinder is compressed between the fingers and immersed in a thin solution of gum-copal (about 2 grs. of gum-copal to ½ oz. of sulphuric ether), which is used for the purpose of preventing the mercury of the amalgam from uniting with the gold, and thus discoloring the tooth. The surplus liquid is pressed out with the fingers, the ether allowed to evaporate, and then, by means of a piece of cotton, the gold is pressed into the cavity and thoroughly condensed by a rotation instrument in the engine pressed firmly upon the cotton. Upon the removal of the cotton it will be found that the thin layer of gold has been thoroughly and uniformly adapted to every part of the cavity, which may then be filled, either with amalgam or cement, without future discoloration.

METALLIC ENAMEL SECTIONS. A NEW SYSTEM FOR FILLING TEETH.

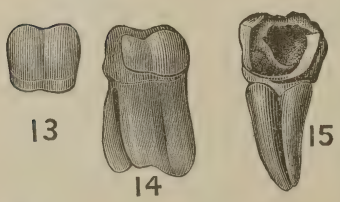
BY DR. C. H. LAND, DETROIT, MICH.

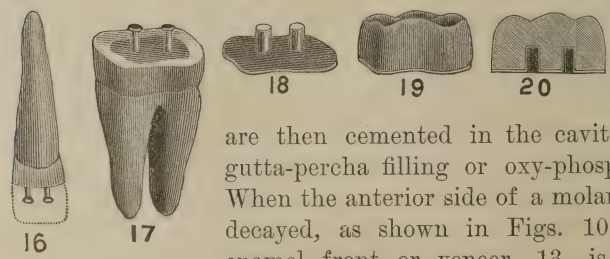
In the July number of the INDEPENDENT PRACTITIONER, a description is given of my new process of coating badly decayed teeth. In addition to this, I have devised a means of filling teeth with prepared sections of porcelain, or it may be designated as a system of partial crown work. By reference to the engraving, Figs. 2, 7, 10, 12 and 15, there will be seen characteristic conditions of decay suitable for this class of work. Figs. 2 and 7 are the prepared cavities on anterior sides of molars. The manner of procedure is to burnish a thin piece of annealed platinum plate into the cavity. This takes a perfect impression of its outlines. The surplus edges are trimmed off and platinum pins attached, using pure gold leaf for solder. See Figs. 3 and 4. The pins serve as a fastening,



both to secure the completed section in place and as retainers for the porcelain body. Figs. 5 and 8 illustrate the completed sections, showing contour of the original shape of the lost portion of the natural tooth. Figs. 1 and 6 are prepared sections cemented in place.

Having secured the prepared sections as shown in Figs. 3 and 4, porcelain paste or body is built upon them and carved so as to imitate the original contour of the lost portion of the tooth, as shown in Figs. 5 and 8. They are then placed on a bed of silex and fused in a gas furnace. This requires twenty minutes for the first biscuit, and fifteen for the second. When completed, they will be a reproduction in porcelain of the lost parts of the natural organs, resembling nature perfectly, both in color and shape. They are then cemented in the cavity, either with gutta-percha filling or oxy-phosphate cement. When the anterior side of a molar or bicuspid is decayed, as shown in Figs. 10 and 15, the enamel front or veneer, 13, is added to the porcelain body, and when completed it will appear as shown in Fig.





14. This veneer serves as a ready and efficient means of securing the proper shade and contour of each class of teeth. To those who are not familiar with the use of a gas furnace this class of work may seem difficult, but a little experience with the modern appliances now within the reach of every dentist, makes the operation a comparatively simple and easy one. Figs. 17, 18, 19 and 20 are a modification. Fig. 17 represents a tooth filled with gold, having two pins attached. Fig. 18 is a platinum disk, with tubes adjusted to correspond to the position of the pins in Fig. 17. Porcelain body is built about the tubes, and when fused in the furnace the whole will form a porcelain crown as shown in Fig. 19. Fig. 20 illustrates the relative position of the tubes, which are designed to form countersinks for the pins in Fig. 17. When cemented in place, it makes a very durable and beautiful piece of work. Fig. 16 is an incisor constructed in a similar manner. From this will be seen the great advantage of being able to have the porcelain in a plastic state, as it enables the dentist to perfectly adapt the form of each peculiar case with the utmost precision, and this could not be so admirably done with manufactured crowns.

In bringing this new mode of practice to the notice of the dental profession, I wish to call especial attention to the large amount of tooth substance preserved. In nearly all the modern systems of crown-work there seems to be too much good tooth material cut away, and I think a careful investigation will demonstrate this new process to be far superior, making it possible to save the greater portion of the crown, it not being necessary to cut beneath the gum. In nearly every case, sufficient tooth substance can be retained to preserve the pulp alive, and when the teeth are devitalized the major portions of the crown can be left intact, serving for retaining purposes and making it unnecessary, in the majority of cases, to resort to screws or posts. Fig. 16 illustrates a section of porcelain adjusted to a central incisor which, when carefully done, makes a very acceptable piece of work. Although the joint may sometimes be conspicuous, it is not nearly as much so as a glaring piece of gold.

The numerous opportunities presented in which this porcelain process will prove to be of great value, is almost without limit, and has enabled me to practice dentistry on an entirely new basis, so that to-day I can say to my patients that their teeth can be perfectly

restored, both in appearance and usefulness, no matter how badly they are decayed. No pulps will be destroyed, and very little tooth substance need be cut away. The use of the rubber dam is largely dispensed with; there are no long and tedious malleting operations in large gold fillings, and no use for amalgam, yet the teeth can be perfectly restored in shape, color and size, with very little pain or fatigue either to the operator or patient.

As my labors for a higher art belong in equal proportion to my fellow co-laborers, and any improvements which I may devise will be presented to them free from the annoyance of patent rights, I take much pleasure in publishing these facts, hoping that they will be appreciated by my brethren as at least one step in the advancement of dental art.

DENTISTRY AND MEDICINE.

BY HERBERT M. KING, M. D.

Dr. Norman Kingsley's letter in the *Medical Record* for November 20th, and later, his discourse before the First District Dental Society, at a special meeting of that body, express a sentiment which will inevitably meet with much opposition among dental practitioners. The object of this movement, of which Dr. Kingsley seems to be the leader in the First District Society, is the establishment of an independent profession in dental surgery, throwing off all allegiance to medicine and creating a relationship between the two as distant as that between law and theology. Among the more forcible arguments brought forward in favor of this movement, is the citation of the old fact that the medical profession at one time did refuse to acknowledge the dental specialty. The force of this argument, however, lies in the sensitive consciousness of certain representatives of a specialty, the youth of which forbids, for the present at least, a fair estimate of its standing. It must not be forgotten that at the period of this occurrence there was a powerful opposition to the branching out of all exclusive specialties from a general practice.

To-day the condition of things is different. Eminent authors and members of the profession at large who have given the question a thought, almost universally acknowledge dental surgery as a

specialty of that branch of science which treats of disease, and the methods employed for its relief. And if to-day dentists would warrant the action by their support, there is scarcely a medical institution in the country which would not place in its faculty a chair of Oral and Dental Surgery (since Dr. Kingsley insists upon distinguishing between the two), and provide conveniences for the practical teaching of the same.

Dr. Kingsley's arguments favoring the evolution of Dentistry into an independent profession might as appropriately be applied to ophthalmology, orthopœdia, or almost any recognized specialty, but particularly orthopœdic surgery, for, says Dr. Kingsley: "The predominating feature and characteristic of dentistry, that which removes it further than all else combined from medicine, is the mechanical nature of its methods." It seems to me that the methods of treatment adopted in orthopœdia partake of mechanics and mechanical principles quite as much as do they in dental surgery. Yet who would question the fact that orthopœdic surgery is a specialty of Medicine, and surely, least of all, its own practitioners?

It is highly probable that other specialties have more to do with the etiology of the several morbid conditions which they treat, than does the dental specialty with its peculiar affections. This fact, however, arises from one of two sources: either the knowledge of causes of morbid conditions in the teeth cannot aid in the treatment of the same, or the education of the dentist is not inclusive enough to enable him to appreciate the connection between cause and effect, and if this latter be the fact, a more general knowledge of possible constitutional conditions is at least very desirable for the thorough understanding and practical usage of this relationship in cases under the direction of the dental specialist. And yet, Dr. Kingsley would have us believe that a general medical education is a superfluous and unnecessary accomplishment in the competent and efficient dental specialist. Indeed, he says that Medicine has little or nothing in common with Dentistry. The fallacy of this statement is too apparent to call for a labored argument, and it needs but a momentary consideration to convince the thoughtful of the unquestionable fact that Medicine is the foundation out of which the dental specialty properly springs—not as "a ballast for the higher flight of the medical kite," but as an honorable and

needful branch, the thorough understanding and successful practice of which necessarily monopolizes the attention of the specialist and alone bars him from the pursuit of a more general practice.

The student, realizing this fact and intending to follow the life of the specialist, turns his principal attention and study to the immediate fields of his practical requirements, concentrating his energies, as it were, rather than scattering them. Together with the general student he studies the preliminaries in anatomy, physiology, chemistry and histology. So far the education of the two is alike, but the special student directs his subsequent efforts to the study of that portion of practice having mostly to do with his chosen specialty; that portion of materia medica and therapeutics and that of surgery best adapted to the fulfillments of his future requirements, and in the end his education, even though attained in a dental college, is really medical, his course being derived from and remaining a part of medical science, and only differing from that science in that it elaborates a part rather than attempts a whole.

In full contemplation of these facts it is impossible to regard dental surgery in the light of an unique profession, since it has, in common with general medicine, such a vast deal absolutely essential to its existence. Its literature is not independent, since it is but a digested and enlarged study of that portion of medical literature having most practical interest for the dentist. Dentistry cannot be divorced from Medicine and regarded as an independent profession, since it has wholly to do with morbid conditions in the living body and the methods employed for the relief thereof. In brief, dental surgery is but the perfected specialty rather than the entirety in itself.

Follow the history of a disease which from its peculiar nature comes to the dental specialist for treatment. Do we not find presenting, as in disease of any other member, an etiology, a pathology, a train of symptoms, a diagnosis, a prognosis, and the treatment indicated? And are not the pathological changes attendant upon a carious tooth or divitalized pulp intimately associated in character with pathological changes elsewhere, and best comprehended by the mind that has not wholly disregarded general pathology?

The practiced hand, with but a little mechanical ingenuity behind it, may be able to prepare and fill a dental cavity as success-

fully as would the graduated specialist, but I am confident that no thoughtful and educated person would wish to place even the most trivial affections of his mouth in the charge of the man lacking the ability to appreciate the whole history and probable future of the case, and whose only virtue is his mechanical skill.

If Dentistry is to be pursued as a trade, by all means separate it from Medicine, and waste no time in studying that science. But if it is to be regarded in a higher light and practiced accordingly, it cannot properly be considered as other than a specialty of that grand division of science, the object of which is the cure of disease and the preservation of health.

Reports of Society Meetings.

FIRST DISTRICT DENTAL SOCIETY OF NEW YORK.

REPORTED EXPRESSLY FOR THE INDEPENDENT PRACTITIONER.

The Society held a regular monthly meeting on the evening of January 3, 1887, at the rooms of the S. S. White Dental Manufacturing Company, corner of 32d street and Broadway, the President, Dr. Wm. Carr, in the chair. After some routine business and the election of three new members, the report of the special meeting of this society, held November 19, 1886, was taken from the table and read by the secretary.

Dr. Abbott inquired why the Kingsley resolutions had been left out, when the President declared them out of order.

Dr. Abbott then moved that the secretary of the society be instructed to officially correct a statement concerning them, which appeared in the December number of the INDEPENDENT PRACTITIONER, page 712. The motion was carried.

The President then called for the report of the clinic committee, which was presented by the chairman, Dr. C. F. W. Bödecker, as follows:

The attendance was between sixty and seventy. Dr. Evans ex-

hibited and explained some gold crowns, the most natural in appearance that have ever been presented at the clinic. The grinding surfaces were made by the method of G. W. Melott, using moldine and the Melott fusible metal for making the die.

Dr. Evans also exhibited some crowns with a porcelain face, which can be used over living pulps.

Dr. W. J. Thayer, of Brooklyn, filled a right upper second bicuspid on the mesial and grinding surfaces. Kearsing's No. 4 soft foil, rolled into a rope and cut as required, was employed, and was introduced by means of his new mechanical trip mallet, which, however, was broken during the operation, the filling being finished with a lead mallet.

Dr. Lawrence Vanderpant, of Orange, N. J., exhibited a geoplastic lower set of artificial teeth with a pink rubber front, made by his process. The teeth used were Ash's diatoric.

Dr. G. F. Reese, of Brooklyn, exhibited an upper set of teeth, with gum blocks made of Reese's metal.

Dr. Crowell exhibited a partial upper continuous gum set.

The President then called upon Dr. Frank Abbott, the regular assayist of the evening, who read a paper upon the structure of the enamel. It was principally a corroboration of what had been previously published by Drs. Heitzman and Bödecker, but the microscopical specimens (of which drawings were shown) had been prepared in the manner advised by Dr. G. W. Weld, to whom Dr. Abbott gave credit for the discovery of the new method, which was by the decalcification of ground sections of enamel in a six per cent. solution of acetic acid. On these specimens the enamel fibers of living matter were claimed to be so plainly visible that no honest observer could doubt their presence, and not only was this the case with the enamel fibers and their coarse offshoots, but it was also true of the minute network present in the enamel prisms.

The President, announcing the subject open for discussion, called upon Dr. Carl Heitzman, who drew attention to the remarkable fact that in spite of Dr. Bödecker's discovery some eight years ago, that enamel is a living tissue, there are still those who assert that it is nothing but a "coat of mail." This view is held by Dr. Sudduth in the "System of American Dentistry." The method of Dr. Weld, it is to be hoped, will at last remove all doubts as to the nature of the enamel, since it enables us to decalcify and prepare it

for microscopical examination in a comparatively short time, and without any difficulties, as regards technicalities.

Dr. Heitzman desired to lay stress upon the assertion of Dr. Abbott, that there is no interlacing of bundles of enamel prisms, and upon the fact that some bundles run a more wavy course than others, which explain the occurrence of transverse sections of enamel prisms between longitudinal sections. He also admits the correctness of the view of Dr. Abbott, that the enamel prisms are quite frequently supplied at their borders with a ledge, resisting the action of acetic acid, and being, probably, elastic substance, similar to that surrounding the dentinal canaliculi. Both the clinical and microscopical features are such that we could expect the acceptance of the view by all scientific dentists, that enamel is a tissue, endowed with properties of life.

Prof. Andrews, of Boston, was not ready to discuss the paper, although he had seen the specimens. He was sorry to hear Dr. Heitzman denounce the work of Drs. Williams and Sudduth.

Dr. Allen was not convinced of the presence of enamel fibers in the enamel, but admitted that it contained some organic matter.

Dr. F. Y. Clark fully agreed with the views advanced in the paper, and was surprised that any close observer could doubt that enamel was alive. Any one can demonstrate this for himself by eating sour fruits, such as lemons or grapes, the juices of which dissolve a portion of the lime-salts of the enamel, exposing the ends of the living matter.

Dr. C. F. W. Bödecker thanked Dr. Abbott for his valuable paper, as well as Dr. Heitzman for his assistance while searching for enamel fibers about eight years ago; he had made use of almost all acids, except acetic, with the view of softening the enamel sufficiently to cut with a razor, but was not successful, He then resorted to the process of grinding freshly extracted teeth under water, a process in which Dr. Heitzman had no confidence whatever, his prejudices being so great that he refused to look at specimens prepared in this manner, until on the 6th of July, 1878, Dr. Bödecker succeeded in staining the enamel fibers with chloride of gold. He had shown such specimens of enamel to many of his medical friends who were histologists, but every one expressed the opinion that the fibers in the enamel were protoplasm. Dr. Bödecker thought that the opposition to the acceptance of his views was mainly due to

prejudice. He had showed to Dr. Waldstein, a former assistant of Prof. Arnold, of Heidelberg, specimens of the development of enamel, and he acknowledged that the stellate reticulum seen was a myxomatous connective tissue, but would not call it by that name, as it was not in accordance with the present views of physiology, although he could not explain why it should not be called connective tissue.

Dr. Wm. H. Atkinson was one of the first dentists who attended at Dr. Heitzman's laboratory. He was very glad that this opportunity had been offered him, but was sorry that he had not been so situated that he could continue the studies. He had sometimes differed with Heitzman, but this did not detract anything from his admiration for his work.

Dr. Atkinson believed that if the System of Dentistry, published by Lea Brothers & Co., were condensed to one-eighth its present volume, it would do some good to the profession. The work was well printed and bound, and that was the best part of it. He believed it was got up more for selling than for anything else.

NEW YORK ODONTOLOGICAL SOCIETY.

Reported for the Independent Practitioner.

The January meeting of this Society was held at the rooms of the Academy of Medicine on the evening of the 11th ult., Vice President J. M. Howe presiding.

Dr. C. A. Woodward introduced a patient with two inferior central incisors implanted by Dr. Younger last summer. The natural teeth had been out for some years, and the process had become absorbed to such an extent that the bone was only a line or two in thickness, making it seem as if striving for the impossible to implant a tooth with such frail surroundings. The teeth implanted were not satisfactory to Dr. Younger, as the pericementum covered but a small portion of their roots. In a few weeks they came out. Nothing daunted, however, he implanted two others, which are today firm, giving much comfort and satisfaction to the patient, and the gums are in a healthy condition.

Dr. N. W. Kingsley described two interesting cases in which he had the honor to perform the operations, one of implantation and one of replantation. The first, for a lady of uncertain age, had a space between two teeth (bicuspids) which had been gradually widening for some time, but not enough to give room for a natural tooth. Wedges were used until sufficient space was obtained, when a tooth was implanted which had been extracted and imbedded in a plaster model seven or eight years previously, there remaining until the opportunity came to use it for some better purpose. This tooth was implanted several weeks ago, and the operation has proved satisfactory to both patient and operator.

The other case was that of a lady of about the same age as the first, whose superior left central and lateral incisors stood so far out of the arch as to greatly disfigure her, and she earnestly wished their regulation. The doctor informed her that the only possible way to correct the deformity was to extract the teeth and replant them. He therefore extracted them and formed anew the sockets for their reception. Finding the teeth too wide for the space when set back, he ground them narrower until they were well fitted, then forced them to their places. This case had also proved a success. In both cases they were held in position by splints.

Dr. S. G. Perry exhibited a set of band matrices of spring steel (from Ash & Son of London). The ends of the band or loop were brought together and secured by means of a screw, and tightened with a small flexible wrench. The bands and wrench were neatly constructed, and seem well fitted for the purposes intended.

The subject for discussion was here announced by the chair—the paper recently read by Dr. Bonwill, of Philadelphia, on the Herbst method of filling teeth.

Dr. B. Lord gave much credit to Dr. Herbst, whom he highly esteems as a useful member of the profession, yet he does not think very favorably of his peculiar method of filling teeth. One objection cited is, that it requires direct pressure upon every part of the cavity to be filled, and to get access to some of these, especially in proximal cavities, must cause a sacrifice of too much tooth substance. He does not think this method will ever become very popular or be generally adopted. Individually, he prefers the old methods of fill-

ing, using soft foil for packing against the walls, and for forming the bulk of the filling, and employing cohesive foil only for finishing the surface or restoring contours. He does not consider the Herbst matrix of much account. He sometimes uses a narrow matrix, but never a wide one, as it obstructs the view of the cavity.

As regards the rubber dam and engine, he thinks they are used too much and too often; many cavities can be prepared and filled equally well without the aid of either engine or dam, and much annoyance may thus be saved to the patient.

Dr. W. H. Dwinelle declared that Dr. Lord in his remarks had about expressed his own sentiments. He does not believe the Herbst method will ever be generally adopted. In some cases he has tried it for partly filling cavities, and with a good degree of success. He was reminded of the statement that "old fogies would not be apt to change their old and tried methods," which probably is the case. The manner in which Dr. Herbst had been received by the dentists of this country should not be construed as adopting his method of practice. He was honored as a man—a decidedly practical man—and it was right that he should have been so warmly welcomed and gracefully treated.

Although many operators at different times had worked gold foil by the "rotary" process to some extent, he gave credit to Herbst for adopting it as a special method, and as based on a theory.

Dr. Dwinelle does not believe that good fillings depend on any particular kind of gold, or foil from any special manufacturer; neither upon the peculiar instruments employed in packing the metal, but rather upon the man or the genius who guides the instrument as it does its good work.

Regarding the idea of testing the solidity of old gold stoppings by passing them through the rolling-mill, the doctor remarked that it was not a true test, for even indifferent fillings, if well cleansed and annealed, will become compact if passed between the rollers.

Dr. W. H. Atkinson said that those who did not understand and had not tried the Herbst method could not intelligently condemn it.

He was an advocate for the heavy mallet, and uses it, yet he saw advantages in the method of Herbst.

Editorial.

THE FIRST DISTRICT DENTAL SOCIETY MEETING AND SOME OF ITS RESULTS.

The eighteenth anniversary meeting of the First District Dental Society of the State of New York was a memorable occasion for more reasons than one. First, it was, if all accounts be correct, the largest purely dental society meeting ever held in America, the number in attendance being about six hundred. The exercises, too, were of an unusual nature, the clinics being a principal feature and the meeting of a decidedly practical character. But that which, perhaps, is of greatest moment to dentists as a body, was not laid down in the programme, and occurred quite unexpectedly. We refer to the complete breaking down of the opposition to the dental section of the Medical Congress which is to meet at Washington, this year.

There has been a deep undercurrent of dissatisfaction with the organization of the Medical Congress, especially among the dentists who are connected with medical societies, ever since the annual meeting of the American Medical Association at New Orleans, when that society assumed the management of the Congress, through its committees. There were those who did not believe that any single society should arrogate this authority, inasmuch as it had always been the policy of the Congress to keep itself wholly aloof from society matters, and to recognize no professional organization whatever. It is not a representative body, but is a convention of the medical men of the world. The section of dental and oral surgery, as first instituted, was, under the New Orleans reorganization, dropped, or what was the same thing, was consolidated with another purely medical section, and entirely lost its dental character. This intensified the feeling of the dentists who did not approve the revolutionary proceedings at New Orleans, and when it was again established it was believed, whether correctly or incorrectly, that it was not done spontaneously, but because the prospects for the Congress were gloomy and the assistance of the dentists was sorely needed. The organization of the dental section proceeded but slowly, when the Buffalo conference was called and the situa-

tion discussed. The decision at that meeting was that it was inexpedient, under the then existing circumstances, to proceed with the formation of a dental section, and the most of the officers who had then been appointed sent in their resignations.

But the president of the section, Prof. Taft, did not lose confidence in the undertaking, and held on, although little was done for some time in urging the movement forward. There was no active opposition, but because they were unfavorably prepossessed there existed a most decided coolness and apathy on the part of many of the leading men in dentistry. The feeling, however, among those who had not identified themselves with the section was, that it would be unwise and unfair to throw any obstacles in the way of those who desired a meeting. It was the undoubted privilege of any respectable number of dentists to hold any meeting which they desired, and those in favor of the section were something more than a mere respectable portion of dentistry. They had certain rights, and even had they been in the minority, those rights must and should be respected.

There has always existed a difference of opinion among dentists as to the true status of dentistry in its relation to medicine, some contending that a medical education was comparatively unnecessary and undesirable, others believing that it should form the foundation for a special training in a specialized medical practice. But the question had never become a living issue, for the time had not arrived when it was necessary to make a distinct departure and to choose a path which should plainly lead either directly away from or towards a more intimate connection with the great mother profession.

This was the condition of affairs when, in October last, at a meeting of the New England Dental Society, Dr. N. W. Kingsley, of New York, read a paper entitled "Dentistry Not a Specialty of Medicine," in which it was urged that there was really no more intimate connection between the two than between any other of two distinct avocations. His views were urged with all the ability, the confidence and the aggressiveness which distinguish the papers of the author. A part of the address was devoted to the consideration of the advisability of sustaining the dental section of the coming Congress, and the author took the ground that as an independent profession we had no business there, and that no considerations

urged us as dentists to take any part in the Congress. He urged that our interests lay in the formation of an International Dental Congress, to be held in the near future. This was the first outspoken and open opposition which had been given voice, for the organization of an International Dental Congress at this time could be interpreted in no other way than as a direct blow at the dental section of the Medical Congress.

The paper was read before a number of different societies, and resolutions were at each meeting offered, looking toward the organization of a dental congress. It was published in full in the last number of this journal, and in an editorial we presented the reasons why this was done. We felt and said that the question at issue should now be met and settled. There should be a fair consideration, and an intelligent expression of the views of the best men in dentistry should be obtained, and we intimated that the pages of this journal were open for a calm discussion of the matter. A very complete answer to Dr. Kingsley's paper was read before the Brooklyn Dental Association, by Dr. C. A. Marvin, and that paper will be found in this number. Another paper from a more purely medical stand point, by Dr. Herbert M. King, will also be found on another page.

But it was felt that at the anniversary meeting of the First District Society the question would probably reach some kind of a solution. Neither of the authors of the papers published, we think, looked for such a speedy and complete settlement of the whole matter as was attained there, for although there was no debate over the matter, it was most definitely and positively decided. The current of opinion was so unmistakably and peremptorily opposed to the views of Dr. Kingsley, that there was nothing to do but to make a virtue of necessity and yield the point as gracefully as possible, and this he did, withdrawing and disclaiming any opposition to the Congress, and pledging to it his hearty and earnest support in the future.

Perhaps there never was a gun fired, the recoil of which was so instant and tremendous as the one of which the final report was heard in our last number. It produced results for which the energetic President, with all the officers and friends of the dental section of the Congress, had labored for nearly two years in vain. As long as

the section was not attacked openly it needed no defenders, and there was an unmistakable indifference in many quarters as to what it accomplished or failed to do. But when danger menaced it, when it was wounded in the house of its supposed friends, the chivalry of dentists was aroused, and those who had retired to their tents came out in full armor, ready to do battle in its cause. The reaction was as powerful as unexpected, and at the final winding up of the First District meeting at Mazettis', a general love-feast was indulged in, and all agreed to bury past differences, sink personal feelings and join hands to make of the dental section of the Ninth International Medical Congress such a success as dentistry has never known. There were mutual concessions and apologies. It was agreed that, perhaps, mistakes had been made on all sides, but that now was the time to forget the things which were behind, looking only to that which is before us.

Dr. Kingsley took the wise and judicious course. He found himself on the wrong side of the fence, and lost no time in getting on the right side, as every honest and conscientious dentist who is earnestly laboring for the highest good of his profession should do. There were others who have thus far stood aloof, declining any active participation in the section, who have now promised their hearty co-operation, and who will give to the section their best and most earnest efforts. The result must be particularly gratifying to the persistent president of the section, who has labored in the face of the utmost discouragement, but who now sees the dentists practically united in support of the cause which is so near his heart, and he is to be heartily congratulated on the result.

And this is why we said that the matter which, in connection with the First District Society meeting, was of greatest import to dentists, was not laid down in the very elaborate and extensive programme that was published.

We have thought it best to thus briefly review the history of the dental section, that the changed situation of affairs might be thoroughly comprehended. For one, we do not pretend to like the medical organization of the Congress any better than heretofore, but that is a matter with which we as dentists need have nothing to do. It only remains for us to so manage our section that we shall win the applause of all, whether in or out of the Congress.

BROKEN BROACHES IN PULP CANALS.

A number of cases in which steel broaches had been broken off in the roots of teeth and left protruding through the foramen, to become the cause of serious disturbances, have lately come under our observation. In one, after an entire quiescence for a number of years, a pericemental inflammation of the most intense character supervened. The pain was extreme, and as after a week's suffering there were no symptoms of resolution by suppuration, the tooth was extracted. The cause was then revealed, in a piece of a broach which had been thrust quite through the end of the root and there left. The reason why there had been no septic symptoms was, that the steel had so perfectly closed the foramen that no septic organisms had found entrance, and the instrument was probably sterilized by antiseptics used at the time of the accident.

The root had been filled with cotton, skillfully packed, and the entire unfitness of this material for that purpose was demonstrated by its condition at the time of the extraction. It was completely disorganized and decayed. A portion of it was mounted in balsam for microscopical examination, and the fibres were found to be thoroughly broken up and quite rotted. A gold filling was over it, but had it not been for the sealing of the foramen of the tooth by the broken broach, the putrescent cotton must long before have brought about a periosteal abscess.

In another case, an abscess had existed for years, which finally resulted in necrotic tissue. The outer plate of the bone was opened and the dead tissue removed with a bur, but notwithstanding careful treatment, there was a refusal to return to a healthy condition. The tooth was extracted, when, through a widely divergent root of the bicuspid which had not been reached in the operation, a piece of broken bur was found protruding about three-sixteenths of an inch. Shall we be believed when we say that, after removal of the broach and the proper filling of the canals, this tooth was returned to its socket, and now, after some months, is in a serviceable condition? Yet such is the fact. Of course there was thorough drainage through the opening made by the operation, and it was quite possible to keep the territory aseptic when healing had commenced, by the proper remedies introduced into the wound, the tooth, in the meanwhile, being held rigidly in place by means of a retaining appliance.

Another case under observation was one in which a dentist had thrust a drill through an exceedingly short bicuspid tooth, and continued until he had entered the maxillary sinus, the result being an abscess of the antrum.

The lesson derived from these cases was, that it is necessary to exercise extreme caution lest a broach be thrust entirely through a tooth, not only carrying with it *debris* and septic matter, but running the risk of leaving a part of the instrument to be the cause of serious subsequent disturbances.

CAN THERE BE SUPPURATION WITHOUT THE PRESENCE OF MICRO-ORGANISMS?

No greater indication of the progress of pathological knowledge can be cited than the fact that all of our text-books regard suppuration as a stage of the process of inflammation, and so teach, and yet, to-day, no really intelligent pathologist holds this view. Since the issue of the latest text-books, sufficient advance has been made to lead to the positive conclusion that every case of suppuration is due to a fungus which has obtained entrance to the disturbed territory and there proliferated. Clinical experience had established the probability that, if an aseptic condition could be maintained, there would be no gatherings of pus. But abscesses were known in which no bacteria could be found, and certain irritants were introduced into the tissues under what was thought to be aseptic conditions, yet an abscess resulted. These things for a time staggered the advocates of the modern theories. Yet as Tyndall finally demonstrated the source of the contamination in the experiments of Bastian, who thought he had demonstrated the possibility of spontaneous generation, so the sources of error in the earlier experiments in producing suppuration have been shown.

Klemperer, of Berlin, made a series of observations based upon one hundred experiments, and showed that without some infection the exudation, when irritants were used, was always fibrinous and never purulent. Since then other experimenters have verified his conclusions, and lately, in this country, the following experiment has been repeatedly performed, always with the same results. Croton oil, or turpentine, was enclosed in a glass capsule which was hermetically sealed, the whole being carefully sterilized. This was then introduced beneath the skin and within the tissues, and

allowed to remain there until the wound was so far closed as to positively indicate that no suppuration existed. The capsule was then broken beneath the skin, and without exposure. In no case was there any purulent discharge. But immediately upon infection, suppuration commenced. It may therefore be considered as established, that without the presence of bacteria there can be no abscess or suppuration.

TO SUBSCRIBERS.

The Independent Practitioner for 1887 will be sent to the subscribers of 1886, unless we are notified that it is not desired, as it is impossible for us to open an entirely new set of books with each year. It is our pride to know that those who have taken the journal for one year usually become permanent subscribers, and are offended if it be stopped. A dental journal is a necessity for any progressive dentist, and where could such an one be better suited than with a journal that is published in his interests exclusively.

Very rarely we receive an answer to a bill sent, stating that, as the receiver had not subscribed for that year, he does not consider himself responsible for the payment. The law says that any one who receives a journal, no matter whether he shall have subscribed for it or not, is legally holden for the payment of the subscription price. If he does not wish it, his duty is clear. He should refuse it, and then the law makes it the duty of the postmaster to notify the publisher that it is not taken from the office, and failing to do this, the postmaster is himself responsible. Further, the law says that a journal need not be discontinued by the publisher until all arrearages are paid.

Of course we do not desire to send this journal to any one who does not wish to receive and pay for it, and if there be any such now on the list we hope they will notify us at once. But we as earnestly hope that there are none such.

THE WESTERN DENTAL JOURNAL.

The initial number of this new aspirant to dental favor has made its appearance, and a good appearance it makes too. The leading original article is by Dr. H. W. Howe, of Lawrence, Kansas, and is entitled "A New Method of Mounting an Artificial Denture." At the last meeting of the Kansas State Dental Society, Dr. Howe demonstrated the making of one of these dentures, from the rolling out of the gold to the final fastening of the teeth with pink rubber.

Upon its completion, the piece was purchased by the society and presented to the editor of this journal as a souvenir of his visit, and among all his professional treasures there are none which he more highly values, for it is as perfect a piece of workmanship as he possesses. He has exhibited it to many dentists, and few have been able to detect the secret of its construction. The article in question tells how to produce such a piece.

The number contains other original articles, with an excellent resumé of current literature, editorials, extracts, and miscellany. $2.00 per annum. Address R. I. Pearson & Co., publishers, Kansas City, Mo.

DENTAL SOCIETIES IN AMERICA.

If we were to gauge the fraternal feeling among dentists of different nationalities by the number of dental societies and the frequency of dental meetings, America would be far in advance. There are probably more dental associations in and immediately about New York City than exist in any other nation of the world. There is an intense thirst here, both to obtain and to give information on professional subjects, and it is to this fact that American dentistry owes its high standing. When a practitioner of any reputation or professional standing here has made an advance or devised a new method or implement, he knows no rest until he has made his brethren acquainted with it. Our journals are continually filled with descriptions of new appliances and modes of practice, and in this they are in advance of those of any other people. There is so much of this intercommunication of ideas, that journals are continually multiplied. There are but three exclusively dental journals published in Great Britain. There are over twenty in America. There are eight (we think) dental societies in England. Caulk's Annual enumerates over one hundred in the United States.

Nor is it in number of societies alone that our sodality is peculiar. Our meetings are of an eminently practical character. English meetings are more decorously conducted, English dentists look more carefully after ethical matters, and at their meetings discuss questions of a broader scientific character, but our clinics and practical demonstrations are almost unknown there, and, in fact, are considered rather *infra. dig.* As a consequence, English dentists know more of general science than their American brethren, but less of practical dentistry.

Current News and Opinion.

THE IMPENETRABLE COLD ZONE IN STEAM BOILERS.

BY T. FLETCHER, F. C. S.

During my experiments on the state of things in that almost unknown space between a flame and a vessel containing water, some most extraordinary facts have come to light, which are not only of the greatest importance to steam users and boilermakers, but explain many curious points in connection with the heating of water.

It is well known that a flame does not come in contact with any ordinary vessel containing water, and that a paper label will remain on the bottom of a tin or copper kettle placed on a sharp fire, until, by drying, it gradually becomes loosened, and loses its contact with the metal, and so becomes burnt. I have myself seen labels on the bottoms of ordinary kettles and pans, the labels being quite perfect after some weeks' use over gas burners and fires. The work obtained from any source of heat by a limited surface is in direct proportion to the difference between the temperature of the vessel and that of the source of heat in absolute contact with it, and it therefore becomes a matter of serious importance to discover what the actual temperature of this cool and flameless zone is, and whether it can be removed. As is no doubt well known, my efforts to remove this, which is practically a wet blanket, from between the vessel and the fire, have been partially successful by the use of projecting studs or webs of definite proportions, and the experiments already published prove that at the ends of copper rods four diameters long, flame contact exists, at all events sufficient to char paper, and to multiply the available duty, surface for surface, six times as compared with either water tubes or ordinary boiler plates, and that the evaporating power of any properly proportioned studded or ribbed plate has no limit except the practical one of removing the steam quick enough to prevent its lifting the water bodily out of the boiler.

After proving beyond doubt that under ordinary conditions flame does not come in contact with a vessel containing water, I endeavored to get this contact and the corresponding increase in evaporating power, by directing flame against the water vessel with the assistance of a powerful blast, the result being, much to my surprise, that I found an impenetrable cold zone surrounding the vessel, absolutely impassable, not only to a powerful blow-pipe flame, urged with an air blast at 1¼ lb. per square inch pressure (the heaviest blast a glass blow-pipe will stand under ordinary conditions), but that it was equally impassable by radiant heat from a sheet of white hot platinum, held as close as possible without absolute contact In making this test the result was proved by the fact that sheets of paper pasted on the water vessel were exposed to both the direct impact of the blow-pipe flame, and also to the radiant heat from the platinum, until the water in the vessel boiled, the paper being perfectly free from charring or discoloration at the end of the test.

Another important fact came out as the result of these experiments. Not only can the maximum temperature be determined by the presence or absence of charring of known organic substances, but also the thickness or depth of the cold zone can be measured by using paper of different thickness pasted to the

surface of the vessel. When the paper used is thicker than the depth of the cold zone, the surface is charred or completely burnt to an invariable depth by each source of heat; but if this charred surface is cleared off with glass paper, the under part will be found perfectly white and clean, and on again directing the flame on this clean surface it remains untouched.

This cold zone, although impassable by flame, hot air or radiant heat, is powerless to resist the carrying of heat through it by solid bodies, and while the blow-pipe flame is being directed on the paper without the slightest effect, a wire passing through the flame and touching the paper will burn it instantly and completely, although the actual temperature of the wire must of necessity be far below that of the blow-pipe flame.

The extraordinary part of the whole series of experiments seems to be the existence of a zone of cold against all surfaces of metal having water behind them, this space being, to radiant heat and flame, almost as impenetrable as the metal itself is to the water. Some heat certainly does pass, or the water would never boil; but the quantity which does make its way through is very trifling as compared with what would pass, and, in fact, what does pass, under such conditions as permit of direct flame contact with the metal.

The result of these experiments does not fit the ordinary accepted theories of radiation and absorption of heat. The fact is that the high temperature stops suddenly at a very clearly defined distance, the division line being sharply drawn. It cannot be said that the heat is absorbed at a sufficient speed to produce this cold zone, because, as a matter of fact, the heat rebounds and is dissipated to a large extent sideways, and this rebound takes place at an invariable distance from the vessel, irrespective of the angle at which the flame is driven, and depending only on the force of impact of the flame. If we could imagine the surface of the vessel covered with a layer of elastic material which is compressed by a torrent of small shot driven steadily against it, we get a mechanical representation of the actual state of things between a flame and a cold vessel, additional force of impact reducing the thickness of the elastic layer, but being powerless to annihilate it —*Industries.*

FIRST DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK.

At a regular meeting of the above society, held Tuesday evening, January 4th, 1887, on motion of Dr. Frank Abbott, it was ordered that the secretary be instructed to correct in the next issue of the INDEPENDENT PRACTITIONER the incomplete and misleading report of the society's proceedings which appeared in the December number of that journal, page 712

The report is incomplete in that it omits to state that after the adoption of the resolutions and the appointment of a committee as provided for therein, objections were made to the legality of the action taken, on the ground that any business other than that specified in the call was not entertainable at a special meeting It having been so decided, a motion prevailed that the resolutions be subject to ratification at the next regular meeting.

It will therefore readily be seen that the omission of so important a part from a report of the proceedings makes incorrect an otherwise correct report, and

at the same time tends to mislead by making to appear as definite and final that which in reality was of no effect whatever.

The society, in regular meeting, has since refused to ratify the unlawful adoption of the resolutions, and they have been stricken from the minutes.

B. C. NASH, Secretary.

The report in question was furnished to this journal by one who was most active at the meeting, and who was therefore supposed to be unusually well qualified to give an accurate account of what was done It was accepted without question, and printed exactly as written. If there were any inaccuracies the fault was with the author of the report, and upon him should the blame rest.—EDITOR.

THE DRUGGIST TO HIS BEST GIRL.

I love thee, Mary, and thou lovest me;
Our mutual flame is like the affinity
That doth exist between two single bodies:
I am Potassium to thine Oxygen.
'Tis little that the holy marriage vow
Shall shortly make us one. That unity
Is, after all, but metaphysical.
Oh, would that I, my Mary, were an acid,
A living acid; thou an alkali
Endowed with human sense, that, brought together,
We both might coalesce into one salt—
One homogeneous crystal. Oh, that thou
Wert Carbon, and myself were Hydrogen!
We would unite to form olefiant gas,
Our common coal, or naphtha. Would to heaven
That I were Phosphorus, and thou wert Lime,
And we of Lime composed a Phosphoret!
I'd be content to be Sulphuric Acid,
So that thou might be Soda; in that case
We should be Glauber's Salt. Wert thou Magnesia,
Instead, we'd form the salt, that named from Epsom.
Couldst thou Potassa be, I Aqua fortis,
Our happy union should that compound form,
Nitrate of Potash--otherwise Saltpeter;
And thus our several natures sweetly blent,
We'd live and love together until death
Should decompose the fleshy tertium quid,
Leaving our souls to all eternity
Amalgamated. Sweet, thy name is Briggs
And mine is Johnson. Wherefore should not we
Agree to form a Johnsonate of Briggs?
We will. The day, the happy day, is nigh,
When Johnson shall with beauteous Briggs combine.

—*National Druggist.*

ST. LOUIS DENTAL SOCIETY.

The following members were elected to serve as officers for the year 1887:

President—Dr. M. C. McNamara.
Vice-President—Dr. Henry Fisher.
Corresponding Secretary—Dr. W. N. Morrison.
Recording Secretary—Dr. John G. Harper
Treasurer—Dr. A. J. Prosser.

JOHN G. HARPER, *Rec. Sec.*
816 Walnut St, St. Louis.

THE SCHOLARLY Dr. D. G. Brinton, editor of that paragon of medical weeklies, the Philadelphia *Medical and Surgical Reporter*, wields a pen that has a point quite as sharp as it is polished. See how neatly he punishes another editor who is always inveighling against those surgeons who get their operations reported in the newspapers in an exaggerated style. "We fear, however, that the keenness of the shaft will be lost upon the man who did so much to make the General Grant case a parallel to that of Garfield:

As Dr. Geo. F. Shrady, of New York, editor of the *Medical Record*, is such a stickler for keeping the names of his fellow editors out of the newspapers, we respectfully ask his explanation of the following felicitous tribute to his skill printed in the *New York Tribune* of recent date:

"Dr. Geo. F. Shrady, of New York City, performed a noticeable surgical operation upon a young son of Mr. W. MacRussell, of Saugerties, N. Y., on Saturday last. The child's leg had been broken some time since, and it had become united so improperly that he had lost all use of it. The doctor removed a portion of the defective bone and reset the limb successfully. Various prominent surgeons witnessed the operation. The patient is doing well."

Will not our brother editor relieve us by stating that this was "without his knowledge" and "contrary to his wishes?"

PROF. W. D. MILLER is the first and only American who has been raised by the German government to the honorable position of professor in the Royal University of Berlin. He has discovered, described and named several micro-organisms, perhaps the most important of which are those which cause dental caries and the Miller bacillus. The latter is a comma bacillus, found in the human mouth, and which, though for a long time recognized as morphologically similar to that ascribed by Koch to cholera Asiatica, and to that by Finkler and Prior to cholera nostras, yet was so resistant of isolation by the efforts of all bacteriologists that it remained for Prof. Miller to obtain pure cultures of it only after repeated attempts.—*Journal American Medical Association.*

CODMAN & SHURTLEFF are manufacturing a very neat and convenient ribbon-saw carrier, devised by Dr. A. M. Dudley. Every one knows how difficult it is to make separation between back teeth, and to dress fillings in these localities without lacerating the angles of the mouth of the patient. In this carrier the saw is set at right angles to the frame, which is divided into two parts at its distal end to receive it, the arms being made of spring steel to hold it taut. Thus all danger of laceration to lips or gum is avoided, and the convenience of the operator greatly aided.

Dr. F. H. Darby, a physician of Monroe, Ohio, was summoned as a witness in a murder case. He had attended the post mortem, and when questioned, answered as to all matters of fact, but when asked for his *opinion* concerning usual results of wounds like that observed in this instance, he declined to give it unless he was guaranteed experts' fees. The presiding judge decided that he must answer the question irrespective of fees, and on the persistent refusal of Dr. Darby, he was committed to jail until he should purge himself of the contempt of court in which he was declared to stand. But Dr. Darby proved himself as firm as the judge, and after four days he was brought before the court, charges formally preferred against him, when he was admitted to bail.

The physicians of Ohio are rallying to the support of Dr. Darby, and it is proposed to carry the case to the Supreme Court of Ohio, if a favorable decision is not sooner reached. In other cases the presiding judge has sustained physicians in refusing to give a professional opinion without receiving the fees of an expert.

We have received from the publishers a phrenological calendar which consists of an outline of the human head, duly surveyed and laid out into town lots, each lot fully improved by a ground plan, elevation, or side view of some article or animal supposed to bear a close analogy to that portion of the brain which, in the human anatomy, forms the substratum of the lot or section. We do not know whether this is supposed to be a representation of the skull of the inventor, but notice that an ass recalcitrant forms the conspicuous ornament of one of the most eligible of the town lots. If any one should desire this kind of a calendar to hang up in his office, we should think this would be about the thing that he would like.

One of the most convenient things for the dentist is Pearson's Dental Appointment Book. It is of a size to be carried in the vest pocket, and yet is sufficiently large to meet all the needs of a dentist in large practice. There is no necessity for searching the whole office over for the mislaid appointment book when it is wanted, for it is always present. There is a column in which a minute of the operations of the day may be entered, preparatory to posting at night, and there are blank pages for memoranda of cases. Send fifty or seventy-five cents to R. I. Pearson & Co., Kansas City, Mo., and get it.

No report has yet been made by Dr. A. P. Southwick, Elbridge T. Gerry, and the Hon. Matthew Hale, constituting a committee appointed by the New York Legislature last winter to pronounce upon the most humane and effective methods for carrying out a sentence of death. The commission will probably ask for more time on account of the absence of Mr. Gerry in Europe. Dr. Southwick is said to strongly favor electricity.—*The Doctor.*

The Microscope for January comes to us greatly improved in appearance and enlarged in size. There are very many dentists who desire a microscopical journal, and to such we can commend *The Microscope*. $1.00 per annum. Address Detroit, Mich.

James Vick, of Rochester, has probably done more for the cultivation of a pure æsthetic taste than any man in America, for through him the love for that which is most beautiful in nature—flowers—has been made active in many a breast where it otherwise might have lain dormant during life. His Floral Guide is a work of beauty in itself, and it contains priceless information concerning the flowers and shrubs without which the most elegant residence is unfit to be a home for the family.

The Dental Office and Laboratory, which has so long been published by Johnson & Lund as a quarto quarterly, without cover, comes to us in its January number completely metamorphosed. It is now a handsome octavo, and is edited by Theodore F. Chupein, D. D. S., who is well and favorably known to the profession as a pithy and instructive writer. Congratulations are due the D. O. and L upon its changed and greatly improved appearance.

The Cincinnati Lancet and Clinic must be known to the readers of this journal, because its name is frequently seen appended to paragraphs borrowed for this department. For years we have been a reader of its pages, and always with interest and profit. Any one who desires its regular weekly visit has but to enclose $3.50 and address Dr. J. C. Culbertson, editor and publisher, Cincinnati, Ohio.

Caulk's Dental Annual for 1886 and 1887 is as full of statistical information as ever, and that is saying much. It is the *vade mecum* of those who desire information concerning dental schools, dental societies, and dental legislation.

Dr. Judson B. Andrews, Superintendent of the Buffalo Insane Asylum, has been appointed President of the section of Psychological Medicine and Nervous Diseases in the Medical Congress, in place of Dr. John P. Gray, deceased.

Dr. D. G. Brinton the accomplished editor of *The Medical and Surgical Reporter*, has been elected professor of American Linguistics and Archæology in the University of Pennsylvania

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The way to sleep, says a scientist, is to think of nothing. But Dr. Hammond asserts that this is a mistake, and says that the way to sleep is to think it is time to get up.

Pasteur in one year has treated by inoculation 2,490 persons believed to have been bitten by rabid animals. In ten of these cases death ensued.

Dr. Joseph G. Richardson, of Philadelphia, well known as an authority in matters of hygiene, died November 13, aged 51 years.

The Council of the Royal College of Surgeons of England has expelled one of its members for advertising in the secular papers

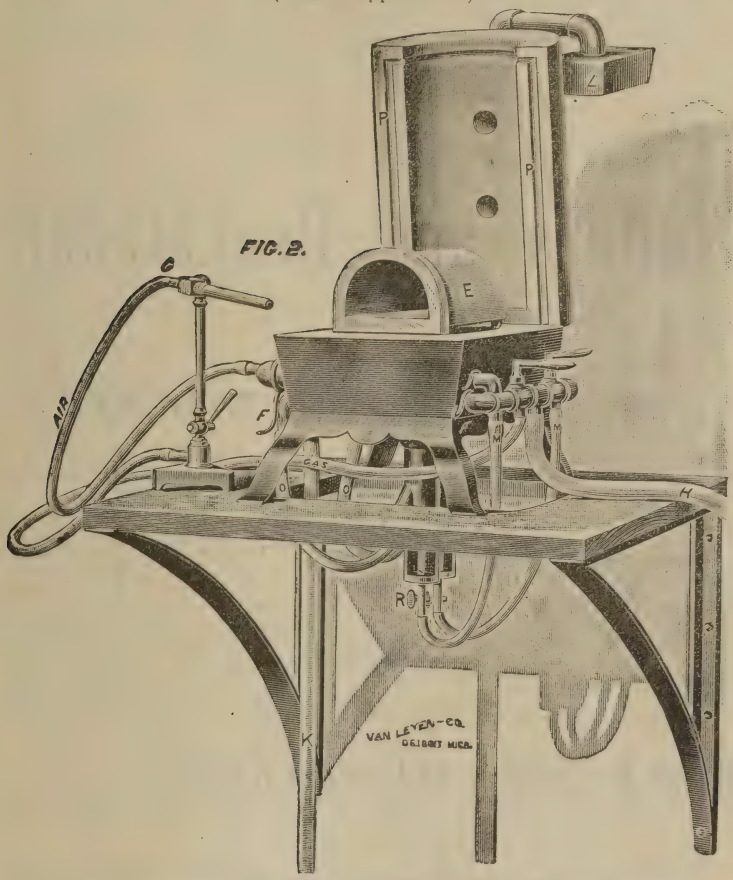
---

"Charlatanism," says Oliver Wendell Holmes, "always hobbles on two crutches—the tattle of women and the certificates of clergymen."

The sessions of the International Medical Congress will last six days.

DR. C. H. LAND'S
COMPOUND
GAS OR GASOLINE FURNACE

(Patent Applied for.)



Size No. 1, especially adapted for all kinds of muffle work, crucible work, blow-pipe work, forging and brazing. It is the most complete furnace ever devised for the chemist, assayer, jeweler, dentist and metallurgist. Continuous gum and porcelain can be baked in from 15 to 20 minutes in the most perfect manner and with unerring precision. Send for descriptive circular.

Instructions—In order to enable those who contemplate using gas furnaces and to comprehend their great superiority over coal or coke fires, my laboratory will be open free to all, and with those who desire a special course in continuous gum work, enamel metallic coatings and enamel fillings, favorable arrangements can be made. A visit to my laboratory will be of the utmost value. Here furnaces are operated by both foot and steam power, using either gas or gasoline. Thus practical working can be seen to the best advantage.

Address, C. H. LAND, 264 Woodward Ave., Detroit, Mich.

10-6-AN-1.

BAKER, JONES & CO.

BOOK AND JOB

Printers and Bookbinders

222 WASHINGTON STREET,

BUFFALO, N. Y.

Office Stationery at Lowest Rates.

R. R. Tickets a Specialty.

TO THE DENTAL PROFESSION

— AND —

DEALERS IN DENTAL GOODS

Having sold our patents, plant, stock and the good will of our business to The S. S. White Dental Manufacturing Company, and being about to dissolve our corporate existence, we request that all orders for the Hand Pieces and Right Angles formerly manufactured by us, also repair work on same, be sent to the above-named Company, which will continue to manufacture them.

THE NEW YORK DENTAL MANUFACTURING CO.

"1000 FINE" GOLD FOIL.

This high standard Gold was introduced many years ago by Messrs. Johnston Bros., and recently revived by us at the solicitation of many practitioners who knew its value. It at once regained its old prominent position, and it has a large sale, being considered by many *the best foil ever made.* As its name implies, all varieties of this Foil, and cylinders and ribbons made from it, will stand the most searching test for purity. The crystallization is so controlled in the process of manufacture as to give the preparations made from it peculiarly fine characteristics. It has a remarkable softness, which enables the operator to pack it like *damp snow,* while by heating all grades of cohesiveness may be obtained without impairing any of its working qualities.

"1000 *Fine*" *Soft Gold Foil.* Very soft and easily worked, adapting itself readily to the walls of the cavity, yet tough and strong. Can be made cohesive by heating.

Supplied in Nos. 2, 3, 4, 5, 6, 10, 20, 30, 40, 60 and 120.

"1000 *Fine*" *Cohesive Foil.* For use cohesively only, and will be found to contain that quality sufficiently for most cases as taken from the book; can be made more cohesive by heating.

Supplied in Nos. 2, 3, 4, 5, 6, 10, 20, 30, 40, 60 and 120.

"1000 *Fine*" *Unannealed Gold Foil.* This is put up just as it comes from the beaters' skins. Many operators prefer this Foil, which they use cohesively, believing that it works more kindly and becomes more cohesive if annealed but once—just before it is used.

Supplied in Nos. 3, 4, 5 and 6.

"1000 *Fine*" *Rolled Gold, Cohesive.* For finishing surfaces, contours, etc. Prepared entirely by rolling.

Supplied in Nos. 20, 30, 40, 60, 120 and 240.

"1000 *Fine*" *Corrugated Soft Gold Foil.*
"1000 *Fine*" " *Cohesive Gold Foil.*

These are the regular "1000 Fine" Foils, with the addition of a beautifully corrugated surface, which in many operations facilitates rapid work. We would call special attention to the surface of these Foils, as we believe it to be better than that of any other corrugated foil in the market.

Supplied in Nos. 3, 4, 5, and 6.

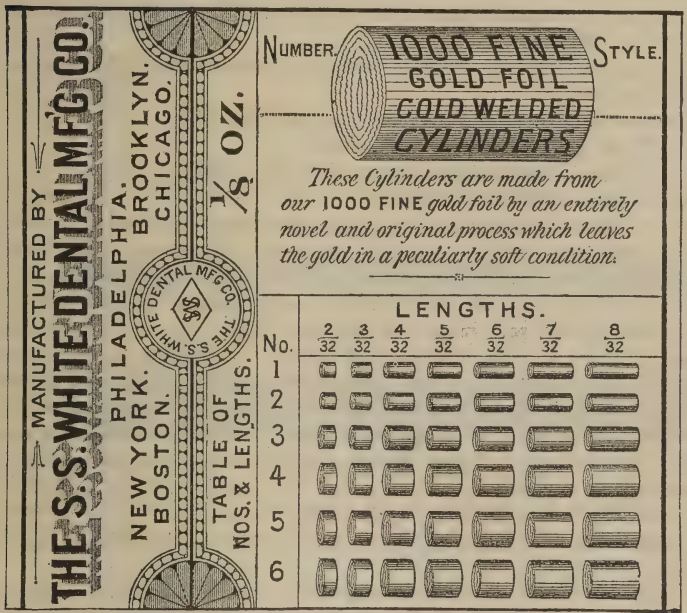
Prices for all varieties of "1000 *Fine*" *Gold Foil.*

⅛ oz.		$ 4.00
½-oz.		15.00
1-oz.		30.00
2 ounces at one time,	per oz.	29.00

For all numbers except No. 2, which is $2.00 per ounce extra.

"1000 FINE" COLD-WELDED CYLINDERS.

PATENT DECEMBER 19, 1871.



These Cylinders, introduced in 1884, quickly met with approval. The ordinary way of welding gold cylinders to prevent their unrolling is by heating the free end. This has a tendency to harden that portion of the cylinder, thus rendering the mass uneven in texture. By our peculiar process of cold-welding this defect is entirely overcome and the cylinders are homogeneous

"1000 *Fine*" *Cold-Welded Soft Gold Cylinders.* Soft and very adaptable, but sufficiently cohesive when heated.

Sizes 1, 2, 3, 4, 5, 6, and assorted.

"1000 *Fine*" *Cold-Welded Cohesive Gold Cylinders.* Although cohesive, they are readily adaptable, and very rapid work can be done with them.

Supplied in Nos. 1, 2, 3, 4. 5, 6, and assorted.

PRICES.

⅛-oz.		$ 4.00
½-oz.		15.00
1-oz.		30.00
2-ozs. at one time,	per oz.	29.00

FLEXIBLE FOLDED RIBBON GOLD, "1000 FINE."

This is another comparatively new preparation, introduced in 1884 with gratifying success. To the large class of operators who use foil in the form of Ribbons, this preparation offers the advantages of saving the time of folding the ribbons, of mathematical exactness, each ribbon of a given width being exactly like every other, and of purity and cleanliness. It being untouched by the hands, the gold is in the same condition as when the foil comes from the beaters' skins. Made entirely by machinery, of strips of No. 4 "1000 Fine" Foil, laid up smoothly and evenly into ribbons of 8 thicknesses, with the cut edges turned into the center of the ribbons, which are then passed between milled rollers to render them pliable, so that each ribbon can be readily folded back and forth upon itself and welded in its place, until the work is completed.

Put up in packages of ⅛-oz., designated as Narrow, Medium, and Wide, Styles A and B.

The package marked Narrow contains an assortment of Ribbons $\frac{2}{32}$, $\frac{3}{32}$, and $\frac{4}{32}$ of an inch wide.

The Medium contains $\frac{5}{32}$, $\frac{6}{32}$, and $\frac{7}{32}$ of an inch wide.

The Wide contains $\frac{8}{32}$ of an inch wide.

"1000 Fine" Flexible Folded Ribbon Gold, Style "A."

For contour and cohesive work.

When freshly annealed, these Ribbons are thoroughly cohesive, while the exactness with which the machine lays the folds of foil insures the most perfect form of gold ever produced for filling teeth on the cohesive principle The layers of foil composing the ribbon lie so evenly together that the gold can be welded into a dense, solid mass with the least possible labor. Any method of preparing foil for cohesive fillings which rumples or wrinkles the foil, as by the common mode of twisting it into ropes and then cutting it into pellets, is seriously objectionable, because it has a tendency to make the gold work harshly under the instrument; and it almost invariably produces a filling of uneven density. The "Style A Folded Ribbon" Gold has been devised expressly to overcome these difficulties.

"1000 Fine" Flexible Folded Ribbon Gold, Style "B."

Made from "1000 Fine." Dead Soft Foil and especially designed for cylinder fillings.

To each purchaser of a trial package of Style B Ribbons an ivory cylinder-roller, the device of Dr. W. A. Bronson, will be given. With this roller the operator can easily and quickly make from the ribbons cylinders of any desired length and size, and of a quality unequaled by any hitherto offered to the profession. The Style B Ribbons are reliably cohesive when annealed.

The care and time necessary for the manufacture of the Folded Ribbon Gold increase the cost considerably as compared with the ordinary preparations of gold, but we are enabled to offer it at the following

PRICES.

⅛-oz.	$ 4.00
½-oz.	15.50
1-oz.	31.00

VELVET GOLD CYLINDERS.

TRADE-MARK "VELVET GOLD."

When this superb preparation of Gold was first put upon the market we made the broad claim that it would be found to possess a wider range of usefulness than any other form of gold ever offered to dentists. It has now been before the profession long enough to prove our claim. Had it been on the market when "cohesive" gold was introduced, the schism between the "cohesive" and "soft" golds would never have arisen. The Velvet Gold would have answered all purposes. It is the softest gold ever used in dentistry, and with its unequaled softness it combines toughness and tenacity, condensing quickly under the instrument. Its peculiar softness is accurately expressed by the term "velvet;" hence its name. It may be packed by any of the ordinary methods,—with the Herbst burnishers, with the automatic, hand, or electric mallet, or by hand presure,—and by whatever method it is used it acts kindly, is readily adapted to the walls of the cavity, and adheres firmly.

The manufacture of the Velvet Gold Cylinders involves the necessity for the most constant care and about double the labor expended on ordinary forms. We are therefore compelled to charge a higher price than for ordinary cylinders, but the superiority of the Velvet Gold Cylinders will, we feel confident, make their use to many practitioners an economy when compared with cheaper goods.

Put up in $\frac{1}{16}$-oz. packages in Nos. 1, 2, 3, 4, 5, 6, and assorted.

PRICES.

$\frac{1}{16}$-oz.	$ 2.25
$\frac{1}{8}$-oz.	17.50
1 ounce,	35.00

PACK'S GOLD CYLINDERS.

Patented Dec. 17, 1871, and July 4, 1876.

Universally known, highly approved, and thoroughly reliable. The sale of these Cylinders has steadily increased, and they are to-day more generally used than at any previous time since their introduction. We have recently made improvements in our processes of manufacture, the result of which is greater uniformity in the Cylinders than before.

FOUR VARIETIES.

Semi-Cohesive Crystal Foil Cylinders. Soft Crystal Foil Cylinders. Semi-Cohesive Crystal Loose-Rolled Cylinders. Soft Crystal Loose-Rolled Cylinders.

We can also furnish, on order, these Cylinders of plain foil, either Soft or Cohesive.

¼ ½ 1. 2. 3. 4. 5.

Each of these varieties is put up in ⅛-oz. boxes (Nos. ¼, ½, 1, 2, 3, 4, 5, and assorted), in a manner calculated to preserve the Gold unimpaired for any length of time.

PRICES.

⅛-oz.		$ 4.00
½-oz.		15.00
1 ounce		30.00
2 ounces at one time.	per oz.	29.00

PORCELAIN TEETH.

Artificial Teeth are to be examined, criticised, approved, or condemned not with reference to any single quality, but as to their *combination* of essential characteristics.

By *comparison* with natural teeth in reference to SHAPE, COLOR, TEXTURE, TRANSLUCENCY, and VITAL APPEARANCE. Some of these tests require to be made *in the mouth*, and as well by artificial light as by daylight.

They should be further examined by contrast with teeth of other manufacturers, with reference to strength, lightness, adaptability, and resistance to changes of temperature.

The artistic products which COMBINE these essentials may be justly entitled Artificial Teeth *par excellence*.

We have now in stock the largest variety of forms, sizes and shades of PORCELAIN TEETH and CROWNS to be found in the world.

We make a constant and earnest study of the needs of the profession, and persistent effort to meet every want as developed by our own observation or described by others, and it is getting to be a difficult matter to suggest any possible case requiring dental substitution for which our stock will not supply the material.

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia. New York. Boston. Chicago. Brooklyn.

THE VULCAN GOLD LINING.

A PERFECT GOLD COVERING FOR RUBBER PLATES.

PATENT APPLIED FOR.

In this Gold Lining we claim advantages over others as follows:

The Gold is applied in one piece to the surface to be covered.

No extra care is required in packing the flask.

The lining is composed of chemically pure Gold with a thin covering of pure silver. The union between the rubber plate and the gold covering is mechanical; and the sulphur in the rubber when set free by the action of vulcanizing attacks the silver, sulphurizing the surface and to this the rubber adheres perfectly.

If the rubber plate is covered on both sides it is tougher when vulcanized, for the reason that during this process the pressure against the metal gives the plate a surface more dense than it will have if vulcanized in contact with plaster.

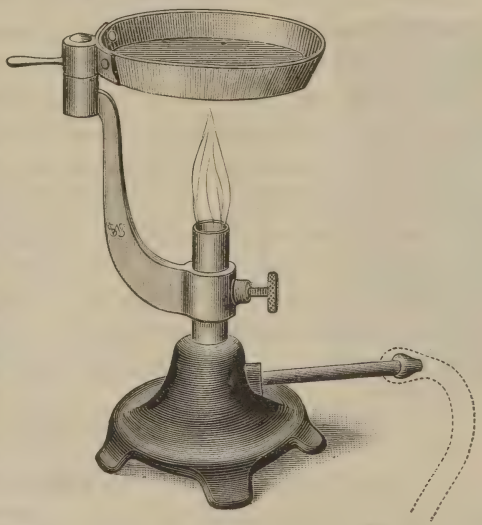
The sheets are of the thickness of No. 20 foil, and each book contains about fifty-four (54) square inches; more than enough to cover six ordinary size plates on one side, or four plates on both sides.

Price, per package, containing 54 square inches, . . $5.00

EXTENSION WAX TRAY AND LAMP.

Tray invented by DR. C. S. W. BALDWIN.

An ingenious little appliance to facilitate the "waxing up" of sets of teeth previous to flasking. Wax placed in the Tray is soon melted, after which the flame is turned down low. The wax remains in the melted state, and a heated spatula dipped into it carries the proper quantity to the desired spot without risk of fouling the flame tube. The Tray can be lifted off or swung around from over the burner when the flame is desired for some other use, or the entire attachment may be removed from the lamp by loosening the set-screw. It will be found to be a very desirable addition to the laboratory equipment. The lamp used is our No. 14 Burner.



Price, Extension Wax Tray, ... $0.75
" No. 14 Burner, ...75

To the Dental Profession.

GENTLEMEN:

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

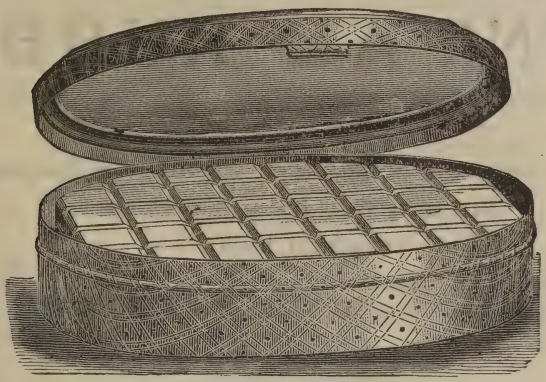
I. W. LYON, D.D.S.,

88 MAIDEN LANE, NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

DR. I. W. LYON'S TOOTH TABLETS



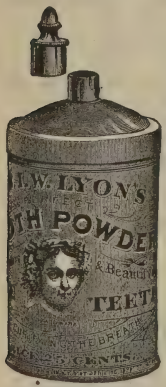
For Purity, Efficiency, Neatness and Convenience these Tablets have no equal as a Dentifrice. They are put up in Seamless Metallic Boxes, which are impervious to air and moisture, and may be carried on a journey without danger of breaking.

HIGHLY INDORSED BY EMINENT DENTISTS.

PRICE **50** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

DR. I. W. LYON'S

PERFECT TOOTH POWDER



ENAMELLED METAL BOX REDUCED IN SIZE.

This Powder is carefully prepared by an experienced dentist, familiarized by practice with the wants of the teeth. It is absolutely pure and free from acid, grit, or other hurtful substances, and is highly recommended by the most eminent men in the profession. It gives a *delightfully refreshing sensation* in the mouth, strengthening and healing the gums, and imparting a fragrance to the breath which is very agreeable.

Put up in an enamelled metal box with sprinkler top, free from the mishaps incident to glass or wood, and very convenient for use, especially in traveling.

ENAMELLED PAPER CARTON REDUCED IN SIZE.

PRICE **25** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

I. W. LYON, D.D.S., PROPRIETOR,

88 MAIDEN LANE, NEW YORK.

AKRON

DENTAL RUBBER

The materials of which this Rubber is composed
are prepared by new processes,
which insure

ABSOLUTE PURITY,

Resulting in a Product of Wonderful

DENSITY, FIRMNESS AND STRENGTH.

It is especially designed to meet the requirements of those who seek to produce the most perfect and artistic work.

It is exceedingly tough and light, and takes a beautiful polish.

Plates may be made very thin without danger of splitting or crumbling away about the edges.

It can be used with the best results for making partial lower dentures, an advantage which no other rubber possesses.

It has the unqualified approbation and endorsement of the profession everywhere, and never fails to give satisfaction.

It will cost you nothing to try it.

Send for samples and prices.

AKRON RUBBER WORKS,

AKRON, OHIO.

Sold by all Dental Depots.

11-5-AN-1

PARSON'S EUREKA SILVER ALLOY.

I am manufacturing and offering for sale a superior Amalgam or Silver Alloy, which has the following properties: It is a quick setting alloy, has great edge strength, therefore a superior alloy for mounting artificial crowns on natural roots. Fillings may be finished and polished in fifteen or twenty minutes after inserting, and retain their polish and silvery whiteness remarkably.

It does not spheroid or bulge like many alloys of inferior grade.

If you wish to use one of the nicest working alloys in the market, send for ½ oz., **$1.50**; 1 oz., **$3.00**; or 4 oz. for **$10.00.**

Let the profession give my alloy a fair and impartial trial, and I feel confident I shall receive a liberal amount of patronage. Respectfully,

DR. W. H. PARSONS,

Sole Proprietor and Manufacturer. WAMEGO, KANSAS, U. S. A.

TESTIMONIALS.

HOUSTON, TEXAS, April 26, 1885.

DR. PARSONS—*Dear Sir:* The Alloy came safely to hand. I am very well pleased with it. Very respectfully, DR. S. E. JONES.

ROCHESTER, N. Y., April 13, 1885.

H. W. PARSONS—*My Dear Friend:* The boxes of Amalgam were duly received, and I consider it very nice indeed. Respectfully Yours, DR. S. G. WOOD.

RICH HILL, Mo., Feb. 9, 1886.

DR. H. W. PARSONS—*Dear Dr.:* Yours of the 5th inst. at hand, and in reply would say your Eureka Alloy is the best I ever used. Respectfully, C. E. JONES, D.D.S.

COLUMBIA, Mo., March 16, 1886.

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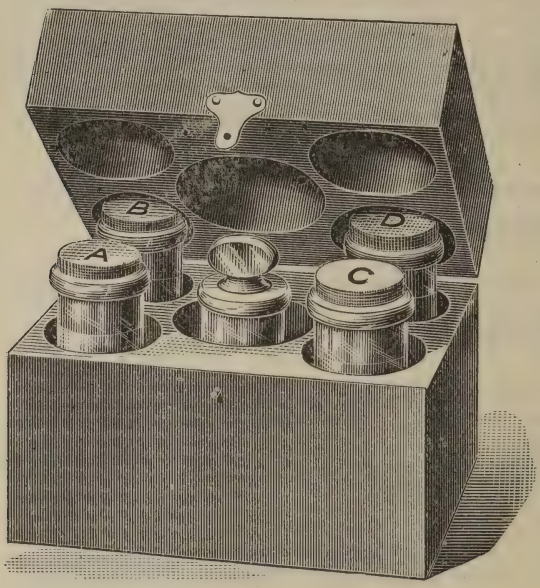

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TUESDAY.
2. Mo. 10

8	Miss Frailey	1	P.W. Peck
9		2	Edgar Thomas
10	Bertie Dook	3	
11	Mrs Harmon	4	Paul Ross
12		5	

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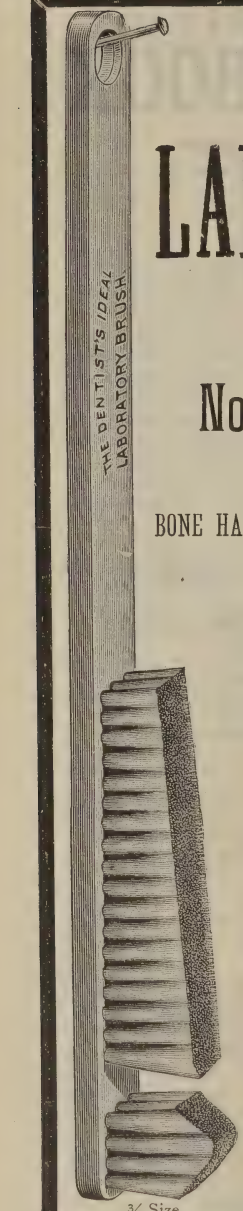

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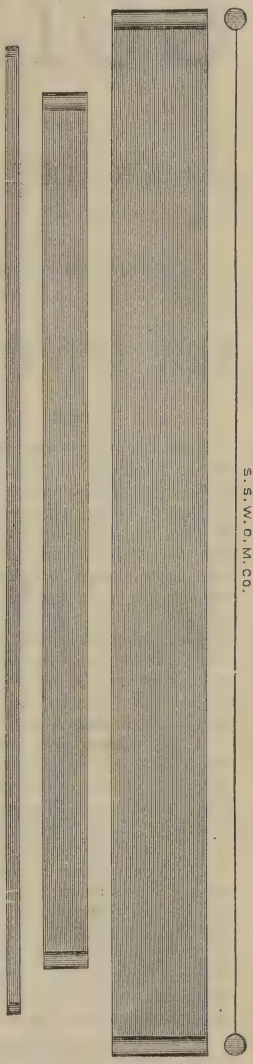

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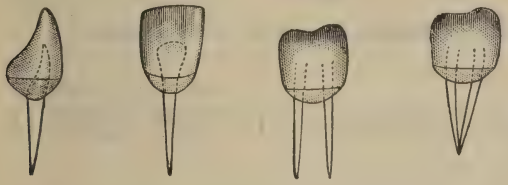
FIG. 1. FIG. 2. FIG. 3. FIG. 4.



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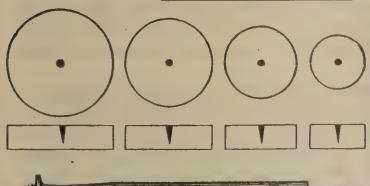

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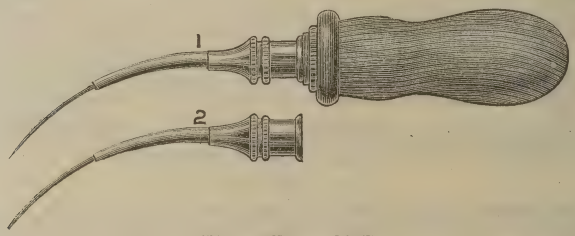

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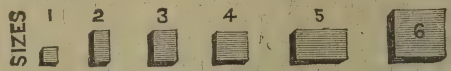

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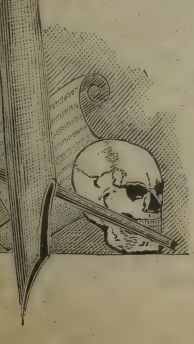

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Table of Contents—March.

ORIGINAL COMMUNICATIONS:

The Influence of Culture on Professional Skill. Thomas Fillebrown..... 113
Concerning Some Uses of Oxy-Chloride of Zinc. N. S. Jenkins..... 123
Is This True? C. R. E. Koch..... 126
Some Observations from the Life of the Late Dr. John M. Riggs, of Hartford, Conn. Geo. A. Mills..... 129
Metal Work. L. P. Haskell..... 133

REPORTS OF SOCIETY MEETINGS:

First District Dental Society of New York..... 135

EDITORIAL:

The Medical Congress..... 155
New York Society Reports..... 158
Professional Courtesy..... 160
Complimentary..... 162
American System of Dentistry..... 162
Crowded Out..... 162

CURRENT NEWS AND OPINION..... 163

Index to Advertisements.

Horsford's Acid Phosphate	Cover	Page 2	New York Dental Manuf'g Co	Page	18 & 19
C. H. Land	"	2	S. S. White Dental Manuf'g Co.	"	20-25
Dr. G. C. Daboll	"	2	I. W. Lyon	"	26 & 27
Dental Practice for Sale	"	2	Akron Dental Rubber	"	28
Underwood Spring Water	"	3	Parson's Eureka Alloy	"	29
R. S. Williams	"	4	Cherry Malt Phosphites	"	29
Listerine	Adv.	Page 1	J. H. Smith's Cements	"	30
A Sensitive Point	"	2	To Inventors	"	30
Munn's Patents	"	2	Ph. Schmidt	"	31
Baker, Jones & Co	"	2	A. J. Nickolds	"	31
Seabury & Johnson	"	3	Vulcanizable Gold	"	32
Claudius Ash & Sons	"	4 & 5	Welch Dental Co	"	33
Acme Gold Foil	"	6	The Hartley Chair Co.	"	34
American Dental Manuf. Co	"	7	Michigan Central R'y	"	35
Cadlk's Filling Materials	"	8 & 9	Daly Gold Lining Dental Co	"	36
Cogswell's Disk Carrier & Guard	"	10	Murdock's Liquid Food Co	"	37
Edward Rowan & Co	"	11	Reed & Carnrick	"	38
C. A. Timme & Co	"	12 & 13	Westminster Hotel	"	39
Hardman's Amalgams	"	14	New York College of Dentistry	"	40
Dibble's White Amalgam	"	14	Philadelphia Dental College	"	41
E. Kearsing	"	15	Chicago College of Dent. Surg'y	"	42 & 43
Lawrence's Amalgam	"	15	Remington Stand'd Type-writer	"	44
Wilmington Dental Mf 'g Co	"	16	Florence Manufacturing Co.	"	44
Gasoline Furnace	"	17			

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Independent Practitioner.

VOL. VIII. MARCH, 1887. NO. 3.

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NOTE.—No paper published or to be published in another journal will be accepted for this department. All papers must be in the hands of the Editor before the first day of the month preceding that in which they are expected to appear. Extra copies will be furnished to each contributor of an accepted original article, and reprints, in pamphlet form, may be had at the cost of the paper, press-work and binding, if ordered when the manuscript is forwarded. The Editor and Publishers are not responsible for the opinions expressed by contributors. The journal is issued promptly, on the first day of each month.

THE INFLUENCE OF CULTURE ON PROFESSIONAL SKILL.

ANNUAL ADDRESS BEFORE THE MASSACHUSETTS DENTAL SOCIETY, AT BOSTON, DECEMBER 9, 1886.

BY THOMAS FILLEBROWN, M. D., D. M. D.

Ever since Arachne tried her skill with the gods and brought down the wrath of Minerva for her temerity, manipulative skill has been the active means of the world's material progress. While agriculture has always been and is the source of the world's greatest wealth, and furnishes the essentials of the people's support, handiwork has ever ministered in so many ways to personal comfort, has created so much of wealth and aided social progress to such an extent as to give it the first rank as a civilizing force. Skill clothes the person, shelters from storm, defends against the strong, creates machinery and sustains its busy hum, delves in the earth and brings forth its treasures and converts them into forms for comfort or ornament, or into forms of power to better subserve the

wants of the working and waiting millions on the earth. It furnishes the means of interchange of the productions of different parts of the earth. It makes it possible to send manufactured commodities to distant regions, and maintains social intercourse between all parts of the world. It executes works of art to please the eye, and constructs articles of vertu to satisfy the taste.

Emerson says, "There is no division in art as between fine art and practical art." Whether art be subject to such division or not, there is a very radical difference in the products. On the one hand, we have the conception of the imagination exhibited in sculpture and painting, conceived by the brain and executed by the hand of the artist; on the other, the practical results shown in the mill, the forge, the steamship, the railway and telegraph. For our present purpose we need not discuss such division. At the present time we deal with the skill which makes the construction of both possible, and seek to find how such skill has been influenced for better or worse by culture of the mind.

Culture and manipulative skill have ever been considered as something apart from each other, and until comparatively recent years were considered almost, if not quite, antagonistic. The consideration of culture, as such, is of recent origin and of slow growth, yet it has now gained ascendency in the minds of the thinking and ruling classes, and firmly holds its sway.

As no man is wholly without skill nor entirely without culture, it is difficult to properly estimate in him the influence the one has on the other. Constructive skill can exist without culture or mental ability, as is shown in the web of the spider, the honeycomb of the bee, the nest of the bird and the cocoon of the silk-worm. Skill alone has no originating power; it does the same thing in the same way, time after time, through endless repetitions.

The very names of the ages show the intimate connection of the useful arts with the progress of civilization, and mark the epochs of the world's progress in culture as well as art. In the crude age of stone, men were savages; they had no accumulation of property, no division of labor, no social organization, no written laws, no tools better than stone. The next era was marked by the discovery of bronze, and the world emerged from a state of savagery into the enlightenment of barbarism. Bronze afforded better weapons for war, and made cultivation of the soil possible, and people began to have a locality

and some attachment to a home. Barbarism discovered the art of quarrying and cutting stone, of spinning and weaving, of brick-making, and left to the world as its monuments the Pyramids of Egypt, the Temple of Karnak, the Sphinx and the Obelisks. The iron age produced the alphabet and a refined taste in literature and art. As the individual begins his existence in the utmost helplessness, ignorance and speechlessness, and through long struggles of years becomes the man, so the race struggled through ages of savage ignorance and barbarism before it could be entitled to the name of a people.

Until very recently, manipulative skill was considered menial, and was not practiced by any person who presumed to any mental or social attainments. Plato had no place for the artisan in his republic, and Socrates held him in contempt. The artisan of the middle ages was fit only to be a slave, and lived and died as such. The wonderfully fine work of Egyptian temples and Roman monuments was the handiwork of slaves, directed by the cultured brains of the priesthood. The composition of society at that time placed all knowledge and culture in the priests. The activity of the people was in the army. The plodding, working masses were slaves, and to this class was left the menial work of the artisan. At the present time, though the artisan is freed from slavery, yet throughout the world, especially the old, he is held to belong to a separate class, and to work is not considered the part of a gentleman. If an artisan rises to any considerable social distinction he is forced to ignore, in a large measure, his former position, or at least the practice of his calling. Manipulative skill, when needed to render personal service in a professional way, as in case of the physician and the surgeon—and also our own calling—has always been held in higher esteem, and been exempt from the odium attached to ordinary skill exercised on inanimate objects, and it is to such as these our inquiry is especially directed.

The progress of mental culture seems to be divided into three distinct periods—the savage, the barbarous or mediæval, and the modern or age of civilization. During the first—called also the stone age—mental culture made hardly a beginning. Force was the only law known or acknowledged, and the best man physically was the best among his people. Saul was admired for his physical perfection quite as much as for his mental qualities. The middle ages

showed great progress of the race. Agriculture was raised to a system and became an honorable calling. Implements of bronze, and later of iron, made improvement in material warfare possible, and made it practicable for the higher conceptions of cultured minds to be worked out in the ornamental buildings of this age. During this period the alphabet came into use, and a refined taste in literature and art was developed; and here the connected story of culture-history begins. During the modern age culture has made rapid and great advances, and become widely disseminated, and the common people feel its influence in a great degree.

The term "culture" is used in quite a variety of senses. Its primitive sense, as applied to the mind, is to improve, enlarge and perfect any single quality, talent or taste without reference to other powers. Applied in this way, it makes the man of one idea. One says: "Industrial art is the main force of culture," thus making culture an impossiblity without art, and secondary to it. A prevalent idea is that knowledge of facts and things is culture. The truer idea is that knowledge makes culture possible. Facts are not science, but their classification makes science.

Matthew Arnold gives the æsthetic conception of culture. He says: "It is a pursuit of our total perfections by means of getting to know, on all matters which most concern us, the best which has been thought and said in the world." Again he says: "Culture is the study of perfection, and leads us to conceive of true human perfection as an harmonious perfection developing all sides of our humanity, and as a general perfection developing all parts of our society." He would have a cultured class, to which he professes to belong, whose aim, calling and end is culture, whose hands are not soiled by toil, whose minds are not disturbed by the disputations of the day or ruffled by interest in the vital questions of the hour. Home rule has no need of them; war or peace is a matter of secondary importance, and they have no hand to raise for or against it. Tariff, free trade, revenue and taxes are beneath their notice, and whether man shall be bond or free, ignorant or educated, rude or cultivated, is to them only an idea. For the working-out of the many social problems, they have no practical suggestions to make.

Such a culture can hardly fail to lead to feelings so æsthetic as to lose all sight of reason or sense, and become only an unworthy dilettanteism, and lead one to become what culture so entirely condemns

—a man of one idea. While the tendency of such culture is to draw apart from the world, the result, as conceived by Mr. Arnold, is far better. He says further: "Culture, which simply means trying to perfect one's self and one's mind as part of one's self, brings us the knowledge that the really blessed thing is to like what right reason ordains, and to follow her authority." This is but another statement of the "law of liberty;" a liberty always to do as one pleases, because one always chooses to do just the right thing, and only that.

M. Renan offers a sound reason for the existence of a cultured class: "The sound instruction of the people is an effect of the high culture of certain classes. Countries which have created a considerable popular instruction, without any serious, higher instruction, will long have to expiate this fault by their intellectual mediocrity, their vulgarity of manners, their superficial spirit, their lack of general intelligence."

While it cannot be denied that a cultured class, even as a special class, may do a work others cannot, the practical American mind appreciates more fully the cultured mind dealing with practical things. It sympathizes with the practical definition of a cultured man, which Mr. Arnold has given in his riper years, in entering the domain of politics and clashing swords with the old gladiator Gladstone, and seeking to make the power of a cultured mind felt on the questions of the day.

Emerson's conception of culture seems to be nearer the true idea, nearer the needs of the human mind, and leaves not out the affections and passions of the human heart. Says he: "Culture is the suggestion from certain best thoughts that a man has a range of affinities through which he can modulate the violence of any master-tones that exert a droning preponderance in his scale." A definition worthy the subject and worthy the man. It makes culture not the end and aim, but the means by which a man makes the most of himself for other and better purposes, and better fits him for his work in life; not of unfitting him for it and withdrawing him from action and joining him to a separate class.

Culture redresses a man's balance and puts him at ease among his equals and superiors; it kills his exaggeration and conceit; it opens his sense of beauty. Culture enlarges the mind and increases its power of conception, both ideal and practical. Again I quote

Emerson: "Culture corrects the theory of success. A topical memory makes a man an almanac; a talent for debate, a disputant; skill to get money makes him a miser. Culture reduces these inflammations by invoking the aid of other powers against the dominant talent."

The pest of society is the egotist. There are dull and bright, sacred and profane, coarse and fine egotists. "'Tis a disease that, like influenza, falls on all constitutions. This egotism has its root in the cardinal necessity by which each individual persists to be what he is. This individuality is not only not inconsistent with culture, but is the basis of it. He only is a well-made man who has a good determination. The end of culture is not to destroy this, but to train away all impedimenta and mixture, and leave nothing but pure power." A man lives a beggarly life who lives only to be practically useful—it is not enough to simply be the block to scotch the wheel; such a one knows little of the possibilities of life.

An early substantial education is the true basis of culture, "though some seem to culture born." If possible every one "should have such opportunities for education and culture that they shall not feel at thirty or forty years that this which I might do is made hopeless through my want of weapons." Culture interests the man more in his public than in his private qualities, and makes a cheerful, intelligent face the index of a cheerful, disciplined mind. Culture enlarges the heart, makes one more polite, more just, more forbearing, more forgiving. Talents, knowledge, skill, are the uncut diamond; culture is the lapidary which grinds the rough into form and perfects the surface and angles which disclose its wondrous beauties and power. There are times when culture must be lost to sight, and what culture has done must be depended upon; times when action is called for, and the why it should be done, and what the result will be, cannot be considered; times when theory is of no avail and only action will serve. Gen. Weitzell, one of the most accomplished and best read men in the army, said to one of his officers, during the late war: "Do not stop to study theory in active campaign—now is the time to be governed by what you see, and not by what you read."

The daily duty of the professional man ought not to be burdened with the conscious thought of the literature and culture of his calling. This must be dismissed, and skill, steadiness and judgment,

which are the results of previous training, must alone be depended upon. Anything less than this proves the want of the culture which is so much desired. Specialism without culture is limiting in its influence, dwarfing the intellect, shrivelling the social qualities, and lessening the influence of every such one among his fellowmen. It makes a man more selfish, more conceited and opinionated; his world revolves on a point, is suspended by a hair and his horizon is limited to a microcosm. No man is born with a mind large enough, or strong enough, or with heart warm enough to stand against its influence.

A notable example of this class was the late Horace Greeley. Born with a mind which immediately grasped the problems of life and the living questions of the day, it jumped the ordinary course of training and spurned the slow process of mental discipline, and grasped by reading what generally is acquired by hard study. Politics was to him the end and aim of life, and the overthrow of slavery the principal object to be desired. He did a herculean work, and his name will be remembered forever with gratitude by all lovers of freedom. But when the one cause for which he had labored had triumphed, there was nothing of recourse left for him, and the last years of his life were tinged with disquiet, and his end sadened by disappointment.

Wendell Phillips, with all his gifts of birth, of intellect, of moral excellence and broad culture, was not proof against the paralyzing influence of specialism. His long devotion to the promulgation of the principles of anti-slavery, and his life-long work as an anti-slavery agitator so absorbed him, that when the end came and the curse was removed, his work was done, and from that day the fire was gone out from his eye, and his tongue lost its caustic sting. While his life illustrates the point of the subject, we will render all honor to him and feel that such a work was enough for one life, and the knowledge of such results reward enough for a sacrifice of all other ends or desires.

Benjamin Franklin illustrates the better class of minds. Born in poverty, educated in a printing office, possessed of a mind of such power that it might scorn the dull, dreary tread-mill of study, and grasp almost by intuition the facts of science and thoughts of literature for which ordinary minds must delve and struggle, he took upon himself the drudgery of study, set his mind to the labor of

thought, and disciplined his faculties into training for the great and varied work of his after life. Instead of limiting himself to the routine of newspaper literature, he became successively the scientist, the statesman and the philosopher, standing a peer among his fellow-countrymen, and challenging the respect and admiration of the world.

To rightly weigh the influence of culture, we must consider the influence of mind upon form and action. It is said in Plato's laws that "spirit precedes the form," and there is given an extended and acute logical argument to demonstrate it. To-day it is quite generally admitted in a little different form. The idea must precede the word, the conception must precede the execution; the hand can go no faster than the mind thinks, and the performance cannot exceed the conception of the intellect. A person color-blind cannot become a scenic artist, nor can a mind without perception of form and proportion make a sculptor. The ideally perfectly balanced man would have all his faculties and powers equally developed, no one showing any predominance, and would possess no controlling taste or talent to decide his course in life. Such a man in this active, specialized life, is fit only for a jack-of-all-trades, and very likely good at none.

While culture calls for the best development of all the faculties, it does not demand that all faculties in all minds shall be alike in strength and persistence. Nature does not make all minds equal or alike in thought or action. This would blot out individuality. It would make a James Watt, or a Stephenson, or a Washington impossible, and the world would settle down into a stagnant mediocrity, or fritter away its power in perpetual strife and disorder, with the shadow of more than the dark ages hovering over it.

The age demands marked ability. Success demands the perfection of one set of talents. The shortness of life makes it impossible to cultivate more than this for practical use; but it is not necessary that all others be neglected until only an automatic monstrosity is the result. Culture demands that all faculties be used, that all tastes and talents be trained, that a well-balanced course of studies be pursued; but it does not demand that one possessing a strong literary taste shall become a carpenter, or that a born philosopher must become a merchant, simply to develop a comparatively weak talent to make the individual well-balanced. This would be follow-

ing culture for culture's sake to a degree beyond æstheticism. The leading talent must be the controlling force in life. The best life is so governed. The other talents must be disciplined to act as steadying powers to keep the mind on the track; must act as the side-guys of the suspension bridge, keeping it from being swayed by winds and torn from its towers, a complete wreck. Specialism is in itself so contracting that it needs the elevating, exalting, enlarging influence of other ideas to elevate it, and the power of other faculties to keep it within its true limits, and prevent its swaying the mind from the strong towers of common-sense.

The world's progress has been a constant witness to the influence of culture. The advance of the world, morally, socially or materially, has not been of even growth, but of uneven, intermittent strides, and each period of advance in mechanical skill has been the result of a time of mental activity and growth. On the other hand, when the minds of a people grew sluggish, or their thoughts diverted to selfish indulgence, or solely to the art of war, their hands forgot their cunning and their fingers lost their skill. After the Augustinian age, Roman Europe declined. It degenerated under despotism, and arts and sciences declined until, during the fifteenth century, intellectual paralysis prevailed; all arts, save the art of war, became lost arts, and Greece alone saved to the world what Europe had produced, but without the power to develop it. "Rome originated nothing. She gave to the world no new order of architecture, no new science. She invented nothing; for no important tool in any workshop, for no process in our industrial arts, are we indebted to Rome." Charlemagne, the prosperous ruler of the ninth century, divided his kingdom among his sons. Intellectual activity gave place to bodily comfort and appetite, and immediately material interests declined.

From the time of Solomon until the present, intellectual activity and virtue have proven the foundation, support and crown of art, science and material welfare. It is also true of individuals as of nations. No man of the past or present has risen to true eminence in any of the professions who was not both educated and cultured. The surgeon's skill with the scalpel is dependent upon and exceeds not the fineness of the perception of the mind, and the excavator, chisel and drill, in the hands of the dentist, can go only where the mind conceives and the thought directs. The hand intellectualizes

the body. "The hand is the symbol of man's power, for while the head wears the crown the hand holds the sceptre. It grasps all instruments for our welfare, from the pen to the plowshare."

No longer can one mind conceive the idea and the unquestioning slave execute the work, but now every artisan must understand the theory of his handicraft. Professional culture is composite—mental and manual. The latter alone makes the unreflecting copyist; the first alone the impotent dude.

In Massachusetts the maxim was early adopted, and has been continually enforced in every period of her history, that "the more cultivated a man's intellect is, the more productive is his labor and the better his life;" and so long as the mind conceives before the hand executes, this must be true. It matters not where the education and the culture is obtained, in college or out, from private teacher or by one's own efforts and application. If it has produced the result of a well-informed and disciplined mind, the work is accomplished. The same is true of professional knowledge. It matters not from whence it comes if it is possessed. It is more easily gotten, and more surely, if the favorable surrounding circumstances of the college and professional schools are sought and improved. But if the obstacles be overcome and the results obtained without these helps, all honor to the victor. In the present, when educational institutions are at everyone's hand, it is poor economy to take the longer and harder route of self-education. Few can do it. Associate education has great advantages. It affords opportunity for interchange of thought. It rubs a man against his fellows, and the friction of emulation brightens faculties and develops excellencies that, without it, would lie dormant through life. It stimulates to good works and furnishes a large share of the discipline of mind and body, which is the essential principle of culture. No one can know the extent or fullness of his own knowledge until it is tried by comparison with others.

This discussion has brought afresh to our attention the fact, which no doubt appeared self-evident from the first, that, added to natural talents, education discipline and culture are the elements of proficiency in every calling, and of success among polite people. The wide diffusion of knowledge, the keener observation of the masses, cause the demands on professional skill to be more exacting and the *ex cathedra* of the doctor to be less readily accepted.

To meet these demands a higher and broader standard of education must be raised, a more thorough preliminary preparation, and a more thorough course of instruction be demanded, and a higher order of talent be encouraged to enter the practice of our profession. Let not the possession of a degree nor the acquirement of a successful practice end intellectual effort, but keep close company with the books, sustain the professional associations, the literary clubs and the scientific societies, and thus keep bright the intellectual faculties, and keep moth, mildew and rust from corrupting and corroding the mental powers.

Culture is the handmaid of art. Keep the hand well trained, for by the hand culture renders her best and greatest service. Bacon's aphorism is expressive and true: "Education is the culture of a legitimate familiarity betwixt the mind and things."

CONCERNING SOME USES OF OXY-CHLORIDE OF ZINC.

READ BEFORE THE AMERICAN DENTAL SOCIETY OF EUROPE.

BY N. S. JENKINS. D. D. S., DRESDEN, GERMANY.

If one is to make any use of this material, whose bad qualities are at first more noticeable than its good qualities, it is especially desirable to have a good article. For my purposes I have been much pleased with the compound formed by uniting Poulsen's oxide powder No. 1, such as is furnished for phosphate fillings, with liquid chloride. It hardens rapidly, adheres to the walls with great tenacity, possesses a clear white color, and, when kept dry for sufficient time, attains a mechanical hardness nearly equal to the best phosphate.

Of course we all make occasional use of oxy-chloride of zinc, with a proper degree of mistrust, for purely temporary operations, and when we can control the patient, accomplish our purposes with great accuracy. But my object in this paper is to explain the use I make of oxy-chloride of zinc in permanent operations.

First, in filling over exposed pulps.

Those of us who begin to number ourselves among the older practitioners, recollect with bitterness our grevious disappointment when we first placed our reliance upon this painful escharotic as a material

for capping pulps. How many failures of our own and of our most skillful colleagues were necessary before we could quite resign faith in a substance whose antiseptic quality and plastic character, making the most delicate manipulation and adjustment possible, promised such good results. I use oxy-chloride of zinc still, but I never let it touch the pulp. When the cavity has been prepared and slightly moistened with creosote, I place a piece of dry paper, such as is used in books of gold foil, over the pulp, taking care to cut the paper somewhat larger than the exposure, and then pack oxy-chloride quickly and gently over it, generally completely filling the cavity. The object of using dry paper is to be able to see, as one can do before it is made transparent through wetting with creosote, exactly where the paper is placed. Besides, a bit of dry paper absorbs any slight excess of creosote. So soon as the filling is properly hardened, the cavity is reshaped, taking then such a form as may seem desirable, it being quite possible in case of necessity to make reliable retaining points in the oxy-chloride. It is generally best to leave a considerable portion of this material in the cavity, but so much of it should be cut away from the edges that the permanent filling, which is now packed over it, protects it perfectly from exposure to the fluids of the mouth.

I quite understand that many dentists feel great confidence in capping with some of the non-irritating cements; but I prefer the method above mentioned, because it places a thin, uniform, non-conducting, non-irritating substance over the pulp, which it protects from pressure, and is itself then covered with an antiseptic, bacteria-destroying cement, which neither expands nor contracts after crystallization, and which simulates in density the dentine, which binds together and efficiently supports weak walls, retains its color, and supplies a solid base, making the permanent filling of the cavity possible at a single sitting. Moreover, this method is easier to me than capping with a non-irritating cement, and covering that with another cement; and, last of all, I have found it uniformly successful.

Secondly, in many large cavities where the pulp is not exposed, and especially where the dentine is soft and the patient cannot be kept under proper observation, where perhaps under ordinary circumstances a temporary operation would be indicated, I first fill with oxy-chloride, and then immediately cover with gold. Much time can often be saved by this method, but its principal advantages

are comparative non-conductibility, antiseptic quality, a union with the walls of the cavity (not simply an adaptation, such as we obtain with gold), and consequent strengthening of weak walls, with perfect preservation of color. In those rare cases where amalgam is indicated, cases which tend to become always rarer as skill increases and gold improves, this method is especially valuable. If with the aid of well-arranged retaining points and grooves it is possible to cap oxy-chloride with a thin wall of amalgam and then leave the dam in position until crystallization has taken place, there is practically no danger of shrinkage nor of discoloration.

The pain which results from applying oxy-chloride to sensitive dentine can be at once subdued by holding whisky, or any other distilled liquor, in the mouth for a few minutes.

Thirdly, oxy-chloride is invaluable to me for filling pulp canals. I prefer to fill the extreme point with a minute shred of cotton, as pain is apt to follow the application of oxy-chloride to the foramen. When all the preliminary steps have been taken, with that attention to detail so indispensable to success, such as securing direct access to the roots, obtaining perfect dryness, good walls, complete disinfection and removal of all debris, I fill the canals with creosote by means of a filament of cotton on a very fine barbed broach. Then I carry on a carefully selected Donnalson broach a bit of dry cotton through that creosote to the foramen, and pack it securely there. This is an operation which requires, in such places as the buccal roots of a superior molar, a steadiness of hand and a delicacy of touch of the highest order. It is no easy matter to wind an almost microscopic shred of cotton about the point of a flexible broach so that it can be carried to the point of a tortuous canal; but this operation is facilitated by allowing the cotton to become saturated with creosote only after entering the canal. In many cases it is desirable and necessary to enlarge the pulp canals, but this is occasionally impossible, and it is in these cases that great manipulative skill is called for.

After the foramen has been stopped in the manner above mentioned, the surplus creosote is absorbed. Cotton saturated with thin oxy-chloride is then carried quickly on broaches, a considerable number of which have been previously prepared by winding cotton about the points, so that no time shall be lost, as the oxy-chloride rapidly sets, until the roots are completely filled. Then the crown

is also filled with oxy-chloride, the surplus cut away and the operation completed with gold.

This is to me the most rapid as well as the most satisfactory method of filling devitalized teeth, and by means of which I am able to secure the maximum of strength and density with the minimum of pressure, together with security against subsequent discoloration.

I do not offer these observations as suggesting new methods of practice, but only to present some of my methods of manipulation in daily use, in the hope that discussion may develop points of practical utility. We all have methods differing in some particulars from those of all other men, and a knowledge of these various methods cannot fail to be sometimes useful.

IS THIS TRUE?

BY DR. C. R. E. KOCH, CHICAGO, ILL.

In looking over some recent numbers of the *Monatsschrift fur Zahnheilkunde*, I was astonished at the statements contained in an article by Zahnarzt Dr. F. A. Heinrich, Frankfort-on-the-Main, entitled, "How One Obtains the Title of Doctor of Dental Surgery in America." The following is a hurried translation of it. It is a serious accusation brought against the moral honesty of our American dental educators. If not sustained by the facts, it is a villainous libel upon American dental colleges in general, and one of them in particular.

We, here in this country, are laboring under the belief that since the formation of the Association of College Faculties, all the abuses formerly practiced and complained of have been remedied, and are now impossible. If there be nothing on which to found such an article, this charge against the good name of American dental science and its educators should not be allowed to circulate in Germany, and to create a false impression as to the real state of affairs of dental education in the United States.

Perhaps it may be well for us, occasionally, to see ourselves as others see us, but certainly the reflections cast in the picture drawn by Dr. Heinrich are not at all flattering. He says:

"Attention has frequently been called, in the literature of our profession, to the exceeding negligence of American dental colleges in enforcing their requirements for obtaining the degree of Doctor.

This is especially so as relates to Germans. As is well known, students are admitted for examination after only a few weeks' attendance (about eighteen or twenty weeks, from which Christmas and New Year's vacation must be deducted), and a diploma is issued. Many of these doctors can scarcely understand a word of English; the examination is, notwithstanding, conducted in the English language. Unfortunately these examinations are not held publicly, but every candidate is examined separately. Whether a third person is present as interpreter is not divulged by the candidates.

"I have formerly called attention to the perfect ease with which a house servant or porter of a dentist, with a certificate of five years of such employment, can pass himself in America as a 'five years' man;' that is, one who has been in the practice of the art and science of dentistry for five years. It is a well-known fact in professional circles, that in Germany, even now, persons improperly practice dentistry, being embellished with the title of Doctor; improperly, because by reason of the liberty of pursuit (*gerwerbe freiheit*) the practice of the healing art (*aertzliche praxis*) is permitted to every one.

"The truth of the above statements has frequently been questioned, but I need only to mention that such certificates were not examined as to their contents in America, but it seemed sufficient that the authorities had authenticated them. What is contained in them is non-essential. If the seal of a police magistrate is upon it—which, in most instances, only authenticates the genuineness of the signature of the maker of the certificate—the gentlemen of the colleges accept as correct and truthful the statements which are made to them by many Germans relating to the nature of the certificate. The signature of the police authorities is upon it, and by the side of it the great seal ! !

"The attacks upon American schools made by Germans, and afterward taken up by the American professional journals, have encouraged several colleges to require a knowledge of the English language as a condition for examination—the Philadelphia College for one. What is the result of this requirement? During this year not a single German has received the doctorate there. Is this merely accidental, or does the college mean to preserve its well-known and valued reputation? In addition, the candidate is required to remain two years at the college. But how is this matter disposed of in the Pennsylvania College? The following case shall

teach us. It is so characteristic and striking that it deserves to be made public in order that for once the German authorities may take a decided stand against the continuously growing number of tooth workers (or dentists, as they call themselves), who are only graduated in America.

Herr N. of W. went to America in the fall of 1884 to obtain the dignity of Doctor of Dental Surgery, and returned in the summer of 1885 to Germany, and *without the possession of a diploma.* He was said to have a certificate setting forth that he had been examined, and that (amazing!) at the end of February, 1886, a decision would be rendered as to whether he had passed or not. Several months ago (in the winter of 1885-86), Herr N. in W. was convicted of the unauthorized use of the title of Doctor by a sheriff's court, in three cases, and fined ten, fifteen and twenty marks. According to this, Herr N. was in Germany in the winter of 1885-1886. Singularly, however, the name of Herr N. is on the list of the graduates of February 28, 1886, notwithstanding his presence in Germany. We ask how is this possible? Are there two persons of the same name? No. Perhaps the Doctor title was bestowed *in absentia?* No; for it is specifically stated in the requirements for graduation that this college grants no diplomas *in absentia.* The matter can be explained very simply: Herr N. sojourned one winter in America and then was returned to Germany without a diploma. His name is continued as a participant of next winter's course, and he is found worthy at the end of the term of 1885-86 to receive the diploma. He could not take the diploma with him, as he could not receive it at an earlier date, because the condition of two years' attendance had not been satisfied.

Foreigners in America, then, may learn the highly praised American dental science and dental art by attendance during eighteen weeks, and having their names continued on the lists a year longer. It is the duty of every assiduous dentist to fight continuously against this sort of swindle, and to labor in the direction of putting an end to this mischief of American education.

"Every approbated physician (*Arzt*) has the right to call himself eye, ear, or female doctor. But if he would be an approbated tooth doctor (*zahnarzte*), he must first finish his studies in the first, third and fourth sections of examinations. A practical knowledge of the manufacture of a single artificial tooth and the construction of an

entire set is required of him, as well as of the entire technical portion of dental science and the use of the different dental instruments, etc. This is demanded of an approbated physician, and yet others entirely uneducated, but ornamented with a foreign title, are authorized to practice the healing art."

SOME OBSERVATIONS FROM THE LIFE OF THE LATE DR. JOHN M. RIGGS, OF HARTFORD, CONN.

BY GEO. A. MILLS, NEW YORK.

ABSTRACT OF PAPER READ BEFORE THE CONNECTICUT VALLEY DENTAL SOCIETY, AT THEIR ANNUAL MEETING, HELD IN HOLYOKE, MASS., OCTOBER 14TH AND 15TH.*

My first meeting with Dr. Riggs was at a gathering of dentists in the city of Hartford, in the year 1865. Up to this date, if I am rightly impressed, he had mingled but little, if any, in the associated bodies of dentists. He was brought before the meeting at this time at the personal request of Dr. McManus, of Hartford, and in his introduction of Dr. Riggs, he referred particularly to the great interest the doctor had given to the disordered condition, so common in the mouth, and which had been generally regarded as a senile one, and not amenable to remedial agencies. It was also so regarded in all the medical and dental literature at that time. Dr. Riggs cordially accepted the invitation to meet with the Association and to participate in its proceedings, and addressed the society at some length, taking occasion to introduce the subject so much in his thought and practice at that time. As a mark of esteem he was elected President of the Association for that year, and from that time to the end of his earthly career he was an active or honorary member of a number of dental societies.

It must not be overlooked that before this date he had made an indelible impression for good in the city of Hartford, and had won a reputation as a practitioner far above the average of his fellows.

Dr. Riggs was of a sturdy, yeomanry type. His father was a farmer, and in early life he was inured to habits of industry. As a lad he learned the art of a stonecutter, and in this he excelled. A desire for mental culture took him to college, and by his trade, together with vacations spent in teaching, he supported himself while attending Trinity College, from which he graduated in 1837.

* This abstract was received from the Secretary of the society, Dr. Geo. A. Maxfield, some time since, but it was impossible to make space for it until now.—EDITOR.

Dentistry, in its poverty at that day, needed the pioneer spirit and enthusiasm of such an one as John M. Riggs, and he was led directly to become one of its abettors by the counsel of Dr. Horace Wells, who was then practicing dentistry, and who has since been honored, first by our mother profession of medicine and surgery, and later, by the citizens of his own State, in the bronze statue which stands in the city park of Hartford.

We must not deny to Dr. Riggs his share in the honor bestowed upon Dr. Wells, both in the part he took in the discovery of anæsthesia, and in the co-operative work of the original designing of the classical face of the statue that records his honor. With the first incident many dentists are familiar. It consisted in the extracting of a tooth from the mouth of Dr. Wells by Dr. Riggs, while he was under the effect of the anæsthetic administered by himself. It was this circumstance on which was based the claim of the discovery of anæsthesia, and which stands to-day as a recorded historic fact. The second incident is not so well known. Several days after the death of Dr. Wells, while his body was lying in the receiving tomb in Hartford, it occurred to Dr. Riggs that possibly the time would come when this discovery would be honored by the profession in some fitting memorial. He therefore requested permission of the widow to go to the tomb and take a mask mould of the doctor's face, and this he laid away as a hidden treasure, to serve its purpose as the future might decide. Dr. Riggs had, even before his commencement of professional life, evinced no small degree of skill as a sculptor, showing the possibilities of an artist had he made choice of such a calling, and how well this talent served him, the face now moulded in bronze will testify, as it was designed from this original cast.

The prime characteristic of the doctor's inner nature was integrity. By this I mean the sacredly following of what to him seemed to be rational and true, and capable of something approximating to a demonstration. This was markedly manifest throughout his professional life. No one who has ever stood by him and witnessed his clinics could fail to give full testimony that "faithfulness was engraved on the tablets of his thought." No such opprobrious remark as "I guess that will do" was ever heard from him. He had a trait of character that ruled his daily actions. While he was a tenacious defender of what seemed to him as truth, yet he counseled with expediency.

He was truly a type of the old-school practice, and he tenaciously held to it throughout his professional life. His practice in general might justly be termed radically conservative, as opposed to the radical idealist. To the dental student of the present day, the methods of preparing a cavity and placing gold within it that were the common practice in Dr. Riggs' day, would seem crude indeed. The principle of condensing gold, and the form of the instrument used, would prove, on close examination, to be the same as those now coming largely into favor, viz., lateral and rotary pressure.

He was an early and late advocate of what is termed by some "oral gardening." The sixth-year molar was watched with the scrutiny of an eagle's vision, and woe be to its existence in the dental arch if it intimated the least maldirection or impingement upon any of its fellows, thus occupying space which could, in his judgment, be more wisely appropriated by the others.

With a few casual exceptions here and there, Dr. Riggs did not seem to attract more than a momentary notice from our profession in general. To this Society belongs the credit of giving a stimulus to his purpose. This consisted in the commencement of clinical teachings. The first subject was Dr. Goodrich, at the regular meeting of this society, held in the city of Northampton, on the eleventh of June, 1867. At this time he was under the necessity of forming the instruments for the case in hand, and at this clinic a decided enthusiasm was manifested. Dr. Riggs has often alluded to this occasion in my presence, contrasting in the later years the change of expression regarding his theory and practice. This clinic was given publicity in quite lengthy detail through the columns of the *Springfield Republican*.

Two years later (June 10, 1869) this society passed a resolution giving credit to the doctor for originality in defining this disease. As the result of this introduction, it may be said that his *début* was made at this time. In 1870 he accepted an invitation from the Brooklyn Dental Society to give a series of clinics at the Brooklyn Dental Infirmary, which was at that time a protégé of that society. Not far from this date he gave some clinics before the Harvard Dental School. During this time, Mr. Charles Tomes visited this country, and at the Harvard school he met Dr. Riggs and saw his operations, and on his return home wrote an article upon the subject, confirming Dr. Riggs' views, giving it as his opinion that the

etiology of the disease, regarded at that time as a premature wasting of the alveolar edge, would or might prove to have a likeness to caries, an opinion which the knowledge of the present day seems to conclusively confirm.

In 1875 Doctor Riggs was elected a member of a society in New York City, before which he read a paper embodying his views on the pathology and treatment of this disorder. This paper was published in the *Pennsylvania Journal of Dental Science.* As far as I know, this was the only article ever published over his signature distinctly embodying his views on this subject, although at different times he, in part, reiterated them. It was not till 1877, at a meeting of the American Dental Association, held in Chicago, that this subject was at all noticed by this body. The ball was set in motion by Dr. Rehwinkel, of Chillicothe, Ohio, under the title of "Pyorrhœa Alveolaris." There was an extended discussion of this subject on that occasion, and from that day to the present time the subject has not suffered for an airing. During all these years Dr. Riggs became more and more in demand for his special treatment, patients coming many hundreds of miles for his services. He had opportunity for the interchange of his views with individual dentists by correspondence and visitations, yet it was a source of no little disappointment to him that those in authority in the several dental schools did not take sufficient interest in it to have intelligent systematic teachings on this subject, but he predicted that the time would come when they could not resist the demand for such teaching. This prediction has proved true. One school, and only one, has provided for such teachings the coming season. It must be admitted that violent and sarcastic opposition to good and valuable things is nothing out of the usual course of human experience, for we know that those teachings which most concern the welfare of mankind have been most wickedly opposed, doubtless more through misconception than otherwise.

We cannot marvel that this boon of amelioration has met the same experience, but out of it there has come a greater acceptance of its value, and the future atmosphere that will be generated by the higher state of living will remove this gift far from selfishness, and the name of Dr. Riggs, as a benefactor, will shine out with clearness in the pages of historic records.

I do not present our brother as a perfect model, but only one

stone in the hands of the builder, which, when it is fitly joined with others, will have its part in the grand and holy temple of which it was destined to form a portion.

Whatever evolution may do for the better understanding of the disorder brought to our notice by Dr. Riggs, nothing will or can disassociate his name from it. It stands as his bequest, and the faithful and unerring pen of history will so record it. If we are as faithful to the trust committed to us as he has proved to his, we will, in a large degree, become helpful servants to mankind.

METAL WORK.

'Read Before the Central Dental Association of Northern New Jersey.

BY DR. L. P. HASKELL, CHICAGO.

As everything depends upon the foundation being correct, when a metal plate is to be made be sure the impression is right. I do not deny that good impressions can in some cases be taken with wax, and more in modeling compound, but there are cases where neither is so reliable as plaster of paris. It may be accepted as an axiom, that the more difficult the case to secure an impression the greater the necessity for the use of plaster. If one uses other materials, he must select the cases most favorable for each. I have found in a long practice that plaster being always reliable, and there being no tangible objection to its use, I secure the best results when I confine myself to it.

Believing that all that is necessary to secure successful results is to have the plate come in close contact with the membrane for adhesion, with a uniform pressure on the gums in mastication and correct articulation of the teeth, the only change I make in the plaster cast is to raise it with a thin film of wax over the hard places, and scrape slightly the rear, between the center and corner of the plate. In order to have the cast deliver itself from the mould, I make the sides flaring all around, that I may secure the best results. I use the only metal which has all the requisites for a dental die—non-shrinkage, hardness, toughness, smoothness, with a melting point of low temperature. These are found in Babbitt Metal, made from the proper formula, viz: one part copper, two antimony, eight tin, care being used to melt in the order named, so that the tin shall not oxidize. The counter die should be lead, with one-sixth of tin added,

so as to reduce its melting temperature, lead melting at a higher temperature than the Babbitt Metal. Coat the die with whiting before pouring the lead. It is seldom necessary to make a second die.

The principal point to guard against is the center, at the rear; see that, by pumping the moisture from under it, it sets snugly enough to exclude air, but not bearing sufficiently hard to irritate and throw off the plate.

The margins of the plate should be carried as high as they can be worn all around, especially over the cuspids. The plate will hold better, and it must be carried high over the cuspids in order to restore the lost expression resulting from the extraction of those teeth; but it must be lowered just back of them to allow full play to the muscles.

The use of gum sections is inadmissible in my practice, because I cannot secure proper arrangement of the teeth nor of the gum, so as to restore the condition of the lips; neither can proper articulation of the teeth be secured with them. Using plain teeth, then, we must use a rubber gum for attachment to the plate. I solder platinum loops to the plate to hold the rubber, fastening one end only.

As much depends upon a correct antagonism or occlusion of the teeth as upon the fit of the plate, and many cases are failures from a faulty antagonism when everything else is right.

The six anterior teeth should never meet. The pressure should be upon the bicuspids and first molar, and always be equal upon both sides. If there is a lower wisdom tooth (the first and second molars missing), it usually inclines forward, and should be avoided entirely, because if it meets the upper tooth at all it crowds the plate forward, constantly increasing the pressure as the jaws come closer together. If there remain upon the lower jaw the six anterior teeth and one or two bicuspids upon one side, and no teeth upon the other, the sooner they are removed the better for the interest of the patient, for the reason that the closure is one-sided and the plate is constantly displaced. The insertion of a partial lower set would not help matters, because very soon the artificial teeth would yield to pressure and be too short, and the uppers would meet only the natural bicuspids remaining.

The position taken by some dentists that the natural teeth should be allowed to remain under all circumstances, is a mistaken policy, resulting in great discomfort to the patient in many cases.

Reports of Society Meetings.

FIRST DISTRICT DENTAL SOCIETY.

REPORTED EXPRESSLY FOR THE INDEPENDENT PRACTITIONER.

The First District Dental Society of New York celebrated its eighteenth anniversary on Monday, Tuesday and Wednesday, January 17th, 18th and 19th. The programme was very long, the whole beginning with a meeting on Monday evening, January 17th, at 8 o'clock, which was held in the Grand Lodge room of the Masonic Temple, corner of 23d Street and 6th Avenue. The attendance at the meeting was estimated to be over 500, dentists coming from almost every State in the Union. It was opened with prayer by Brady E. Backus, D. D., of New York, followed by an adddress of welcome by the President, Dr. Wm. Carr, who, in the course of his remarks, spoke of the International Medical Congress as follows:

At a special meeting of our Society, held on November 15th, a paper, entitled "Dentistry Not a Specialty in Medicine," was read by Dr. Norman W. Kingsley, in which he advocated holding an International Dental Congress, to which all reputable dentists should be entitled to membership. While this meets the approval of many of us, we feel that it is as yet a question for future consideration, as one of the most important events, not only to us as a Society but to the dental profession generally, will occur during the present year, on September 5th, when the International Medical Congress will convene at Washington. While the excellence of American dentistry is universally conceded, we have never had the opportunity of meeting our foreign brethren of different nationalities, as a professional body, in our own land. This opportunity will be offered at the coming session of the Congress, to which a section has been assigned in Oral and Dental Surgery. In regard to this section, there has existed on the part of some of us a feeling of apathy for which no one seems able to furnish an explanation. The section was not organized for the aggrandizement of any individual or class of individuals, but it was organized that dentistry of the civilized world might be properly represented.

It is our duty to cast aside all personal and sectional differences and zealously assist the officers of this section to make it worthy, as a scientific body, of a place in the Congress, and thus prove that the reputation that has been so universally accorded us is not unmerited. We must also consider that we have a reputation for hospitality to sustain, and we should receive our foreign brethren with a generous and hearty welcome.

It is for the dentists of America to decide whether this section shall be a success or a failure. If it proves to be a success, we can view the result with pardonable pride; if it proves to be a failure, the disgrace will rest upon us as a profession.

I beg you, gentlemen, to do whatever lies in your power to make this section worthy of Americans and American dentistry.

Prof. Taft, of Ohio, responded, in substance, as follows:

Mr. President and Gentlemen:

To the words of hearty and inspiring welcome to which we have just listened, what shall be said befitting the occasion, in response? I have no doubt that the rich provision that has been made for this meeting will be a surprise, and afford much gratification to the visitors and guests here assembled. No scheme or programme equal to this in kind or extent has ever been presented for a similar occasion, and it may fairly be accepted as one of the marked indications of our professional progress; and it is eminently fit and proper that it should be done in this great city, to which so much of history attaches, where scenes have been enacted and men lived that will be ever held in remembrance. It was here that, one hundred and twenty years ago, Robert Wolfingdale lived, the first dentist who plied his vocation on American soil. Here also lived John Greenwood, so successful in practice. This, too, was the home of Elisha Baker, John Lovejoy, I. N. Foster, J. Smith Dodge, Solyman Brown, Shearjashub Spooner, E. G. Tucker, Eleazer Parmly, and a host of worthies who accomplished a great work, and who wrought better than they conceived by laying the foundation on which is now being reared a noble structure. Here was published the first periodical in the world devoted to the interests of dental science and art. Here the American Society of Dental Surgeons, the first dental society in the world, was organized, and by noble men, whose aims and aspirations it would be well to imitate; whose

lives and works it would be well to study. Though this organization lasted but a few years, much good work was done, and the spirit it engendered has ever been active, and will never be extinct. It did the work of a pioneer, and laid out a path for others to travel. That its aim was high and praiseworthy is demonstrated by the first article of its constitution : "The objects of this Society are to promote union and harmony among all respectable and well-informed Dental Surgeons ; to advance the science by free communication and interchange of sentiments, either written or spoken, between members of the Society, both in this and other countries ; in fine, to give character and respectability to the profession by establishing a line of distinction between the truly meritorious and skillful, and such as riot in ill-gotten fruits of unblushing impudence and empiricism." Also from the pen of Dr. Solyman Brown, Secretary of the Society, written soon after its organization, in answer to this question : "What are the essential qualifications for membership in the American Society of Dental Surgeons ?" he states : "Respectable talents, creditable acquirements, professional integrity and good moral character." Who to-day can improve on this definition of the qualification of a good dentist ?

These noble men were deeply interested in all efforts for the advancement of dental science, and they and their followers did pioneer work all over the land. In this historic place it is eminently proper for us to gather, for here our profession saw its first light in the new world, and we should honor the memories of those men who made possible the achievements of the present day. We should well consider the work they have done for us by clearing away difficulties, that their followers might tread an easy path, and we should honor the memories of those who laid foundations on which we build, and sowed seeds that bear such fruits as we now enjoy.

Let us bear in mind that the pioneers are not all of yore, for some are even with us now. We have still fresh fields to occupy, and new avenues to open, with difficulties to be encountered and sacrifices to be made. Seldom does the pioneer receive the appreciation he merits.

We can look with pleasure on many things pertaining to our profession, but perhaps none for which we should be more thankful than for the solidity and absence of schism among us. There is no

principle of discord to produce contending factions. Occasional agitations that have occurred have, after a brief period, passed away. Our body moves forward in solid column, to accomplish whatever great objects we desire to obtain, and while all of us are supposed to be independent thinkers, and capable of drawing our own conclusions whenever important questions affecting the whole body come up, there is such an unanimity of views and concurrence of action that no parallel can be found. This is no vain boast, for facts verify the statement. Nowhere can a body of men be found so free, yet so firmly banded together, without division or faction, and the truth of this statement is manifested on this present occasion. In this assembly are hundreds from all parts of this broad land, for a common purpose, with common sympathy and strong fraternal feelings. And thus do we occupy enviable ground, which should be utilized in discharging the duties and responsibilities devolving upon us. We have no intestinal struggles in which to spend our strength or divert our energies, and naught to do but go on and fill the high behest before us. Is it then a marvel that such great and rapid progress should be made, and that in the race for high achievements dentistry should be abreast of even the foremost? Let us be careful that our work does not lag. The Dental Profession is one of the battalions of the great army engaged in the warfare against disease and the ruin which it works. Let us then press on to that great victory, when disease shall be conquered and death shall no longer sit regnant as "king of terrors," but shall be relegated to the position of the kindly porter to open the gate for the easy passage of redeemed humanity from this to a higher place of activity and enjoyment.

The President then called upon Prof. James Truman, of Philadelphia, who read a paper on "The Rational Basis of Practice." The essayist remarked that his paper was not intended to bring up anything new, but to stir up thoughts. He remarked that principles should be our corner-stones in practice, and as our field was too large he advocated specialties in dentistry as the only way to success. The older men had not made as much comparative progress as the younger members of our profession. He admitted that our fathers in dentistry had been great men, deserving great credit, but they saw too much before them, and had no time for investigating small things. The essayist then described at some length the

growth and development of an infant, and in this connection, while discussing the shedding of teeth, he highly recommended the use of the lancet at a proper time, whenever dentition was accompanied with pain and the gums swollen. The roots of the teeth at that time were not fully formed, and consequently their apices were sharp, and by the pressure of the gum upon the crown of the tooth they produced an irritation upon the dental pulp. He was opposed to the extraction of the first permanent molars in any case, and discussed at some length the comparison between the teeth of man and those of rodents.

The essayist then described the structure of the pericementum, as well as some of its pathological conditions, defining pericementitis and pyorrhœa alveolaris. In this connection he doubted if, in the pericementum of a tooth which had been out of the mouth for any length of time, the circulation could become re-established, although he acknowledged that the membrane was governed by laws different from those which dominate other tissues. He objected to the use of clamps, as well as separators, and was of the opinion that all continuous force applied to the pericementum for any length of time might result in death, either of the alveolus or the dental pulp. Some of the bad effects caused by the injudicious use of such instruments could only be observed from twenty-four to forty-eight hours after the operation. As a preventive of an inflammatory reaction in these conditions, the essayist advised the use of a germicidal mouth-wash. He condemned all immediate wedging, but recommended the use of cotton for such purposes. He was not in favor of placing bands around the roots of teeth, which encroach upon the pericementum, thereby causing either acute or chronic inflammation, while extensive bridge-work, which was supported by a few roots or teeth only, was open to the same objections. The essayist was opposed to the use of all bridge-work from that standpoint, as well as for the reason that it might become loose and be accidentally swallowed by the patient.

Dr. Truman then discussed several of the causes of caries. He is of opinion that, very often, the cervical decay at the margins of proximate fillings is caused by the use of the mallet. Wherever a mallet was employed for the introduction of gold into cavities of teeth, the operator should always avoid its touching the walls of the cavity. In many instances the enamel was cracked, and decay

might commence through the invasion of micro-organisms. He indorsed the theories of Miller, and of Leber and Rottenstein, and believed that galvanic action had never been proven the cause of caries. He thoroughly believed in the Herbst method of burnishing gold against the walls of cavities, since he had become more familiar with the method.

He closed his paper by reminding dentists that the more they study the causes of decay, the better will be the results of their practice.

Dr. T. D. Shumway, of Plymouth, Mass., then read a paper, entitled "A Monograph of Science and Dentistry." The essayist remarked that all parts of the teeth were subject to decay, and advised a careful study of the causes which, as yet, were not definitely known to every practitioner. He then dwelt at some length upon restoring the contour in filling teeth, but was opposed to separations. He was opposed to making experiments in the filling of teeth out of the mouth, as very often two experimenters arrived at opposite conclusions in making the same experiment. He thought that the causes of dental caries had not been satisfactorily explained, and was in doubt whether the bacteria preceded the acid, or *vice versa*. He dwelt upon the necessity for the study of physiology before that of pathology, and described the development of the enamel and dentine in a very unique manner.

He expressed the belief that most forms of dental caries originated from predisposition, and that the causes were located more in the tooth substance itself than in its surroundings. The chemico-vital force was an energy which ought to be better considered. The filling of a tooth must be scientific as well as practical, and although gutta percha, and tin and gold as filling materials, had proved to be reliable, yet most operators did not pay sufficient attention to the physical properties of these materials. Gold, under certain conditions, was the best material, but when used against the walls of teeth it should not be annealed, as heat would develop a new crystallization of the gold, and this would prevent perfect adaptation to the walls of the cavity. He condemned the use of the mallet, and dwelt upon the idea of teaching only one method of filling, which had for its base the highest law of physical force.

Dr. Wm. H. Atkinson said that the human body arises out of a

mucoid bleb of protoplasm—the germ. A stratum of hyper-oxidized hydrocarbon forms the outer skin of this little body, and an inner lining, which are the analogical foresteps of the respiratory, digestory and genito-urinary tracts. Between these two skins known as the "epi-blast" and "hypo-blast" masses of embryonal or indifferent corpuscles make their appearance at the margins of these membranes by proliferation, which are gathered into proto-vertebral and which subsequently differentiate under the incoming current of typal impact into nerve plates, bone plates and muscle plates, from which the nervous, bony and muscular systems take origin.

These masses are divided into body walls ("somato-pleural") and visceral walls ("splanchno-pleural").

There are two forms of limitory tissue, viz: Epithelial and white connective tissue corpuscles, which form the limits of the body and of the cavities of the viscera, and of the viscera and limbs, constituting the system of organs as a whole.

Nutrition occurs in the protoplasmic or neural mass constituting the interiors of the ultimate corpuscles of the various tissues, nervous, bony, muscular, connective and epithelial. The incoming current of pabulum nourishes these tissue elements in health. When the nutrient impact is obstructed irritation is produced, which arrests nutritional changes in the bodies (nucleus) of the corpuscles.

Should the obstruction be removed, nutrition goes on again without special detriment; but should the irritation be continued, combinations of pabulum with tissue cease, and reversal or dissociation of pabulum and corpuscles sets in.

This is the first and simplest form of retrogressive movement which constitutes the initial form of the imflammatory process.

Should this continue, the process of reversal of current is propagated to adjoining corpuscles, until the calibre of the trophic or afferent nerve is so encroached upon as to reduce the neurine, minifying this condition of the nutrient or sensory current.

Emotion or sensation may do this; words—unkindness may kill!

These are examples of shock.

After trophic and sensory nerves have been obstructed for a time, the interruption of current is propagated to vaso-motor nerves also, and then we have not only "stasis" of nerve current, but also stasis of blood current in the fine capillaries. So soon as these are distended with the blood column "congestion" is present.

The next stage is "exudation" of the serum into the surrounding areolar spaces, and is the immediate antecedent of perceptible "swelling."

When the swelling impinges upon the sensory nerve tracts so as to minify the thread of neurine to the degree of obstructing the afferent current, "pain" is present, completing the essential conditions of the inflammatory process. "Redness" may or may not be present, but usually is. With proper management "resolution" may yet be invoked without the formation of "pus" by *death* of *blood, fluid* and *corpuscular,* within and without the congested territory. Should resolution not take place, the inflamed territory will augment until exercise of the part is inhibited, from debility, or from intensity of the pain; "debility" from paralysis of the motory system, and "pain" from obstruction of the sensory system of nerves. As soon as the plus quantity of radiancy, which polarizes the corpuscles and renders the serum plastic, is exhausted, death asserts its dominion by inaugurating chemical change through deoxidation and production of ptomaines so destructive to integrity of the part by their alkaloidal and poisonous character, perverting or arresting physiological activity.

When the oxy-hæmoglobin is deprived of its loosely-held oxygen, it is reduced to inert hæmoglobin, and there being no free oxygen present to repolarize it by converting the now plain oxide of iron into a sesquioxide by appropriation of a half equivalent of the oxygen, the globule readily melts into "*sanies.*"

The next product in the retrogressive chemical change is this: Hæmatin is diffused throughout the broken-down corpuscles and serum constituting the sanies, which now takes hold of nerve and muscle, killing and destroying them, and dissolving them into a product termed "ichor," which now in turn attacks sinew and bone, producing fearfully destructive ptomaines, against which not even white and yellow connective tissue corpuscles are able to stand, though these be the last to yield to the solving process of alkaloidal power, resulting in "phagedena" and "gangrene." The principles of cure consist in destroying poisons, and removing dead and dying tissue by mechanical, chemical or dynamic means.

TUESDAY EVENING JAN. 18TH.

The society again convened at the Masonic Temple; over six hundred gentlemen were present, completely filling the large hall.

Dr. N. W. Kingsley read a paper, entitled "Critical Essay on Treatment of Irregularities." He produced maps or sketches illustrating a number of regulating cases, with appliances in position and teeth being operated upon. He stated there could be no positive system in tooth-regulation. He had invented many appliances for various cases presented, and seldom employed the same arrangement for a number of cases.

In treating irregularities we had nothing to do with anatomy, physiology or therapeutics, but should be governed by the best mechanical laws. Referring to one of his diagrams, he called attention to the so-called Coffin appliances, and to Dr. Coffin's statement at the International European Congress, that he had treated 2,500 cases with his piano-wire springs and vulcanite plates. Dr. Kingsley had also tried them, but found that too much time was required to accomplish the desired results with them, and obtained the same ends by other means and in less time.

Figures were also exhibited, showing piano-wire appliances of Drs. Newkirk, Talbot and Caldwell. In criticising these cases the essayist stated that where the back teeth articulated well and the front teeth were much mixed up, it was often better to do some extracting than to put in an elaborate appliance to correct the trouble, and he believed the methods he adopted were the most simple and easiest for patients. He also had diagrams representing cases treated by other dentists.

Dr. Talbot, of Chicago, in response to an interrogation, explained how he produced certain results, which Dr. Kingsley did not appear quite to understand. Dr. Talbot carefully pointed out the several steps taken, giving his reasons for the same. He also stated that Dr. Coffin, of London, was greatly to be commended for his piano-wire and vulcanite plate combination, and that he (Dr. T.) had obtained very good results by using them.

Representations of cases of Dr. Keely, of Ohio, and Dr. Farrar, of New York, were shown by Dr. Kingsley. Case 18, of Dr. Farrar, was a complicated one, consisting of a centre piece with a line of jack-screws and other arrangements in profuse number. Dr. K. could see no necessity for such complicated affairs.

Dr. Farrar described the appliance alluded to, stating that it worked nicely, and that the patient soon became accustomed to it.

He takes pleasure in studying out and constructing such appliances, as he is very fond of mechanics.

Dr. Kingsley considers that for the treatment of irregularities the simplest and easiest methods are best.

Dr. J. Rollo Knapp, of New Orleans, read a paper on "Crown and Bridge-work," which will be found in *The Cosmos* for February.

Dr. Frank French, of Rochester, read an essay entitled "What Caused It?" He cited a case where, in the mouth of a lady, was an inferior molar with fillings of both gold and amalgam. She complained of a pronounced metallic taste and a profuse flow of saliva; on the same side of the face the gland was much enlarged. The face was bandaged with a linen compress, and although no medicinal application was made, the surface of the linen against the skin had a reddish-brown color when removed. Some of the patient's friends imagined it a case of mercurial poisoning, so the amalgam filling was removed and a gutta percha stopping substituted. The saliva was tested and found normal. Query—What gave the color to the compress?

THE CLINICS.

These were of the greatest interest to the visiting dentists, and many new methods and implements were exhibited. They were given at the rooms of the New York College of Dentistry, commencing Tuesday, January 18th. It is estimated that at least six hundred dentists were in attendance during the day.

Dr. Olga Neyman, of New York, filled a left upper lateral, the cavity being in the mesial surface, using Quarter Century foil, which was introduced by the hand mallet.

Dr. Sophie E. Feltwell, of Pittsburgh, Pa., placed a gold crown upon a right lower second bicuspid in the mouth of a patient for whom Dr. Kirk, of Philadelphia, Pa., had implanted a left upper central incisor, which appeared to be satisfactory in every respect.

Dr. Genese, of Baltimore, exhibited a very ingenious dental speculum and mouth gag combined, which was also a lip holder and tongue compressor.

Dr. T. W. Brophy, of Chicago, filled a right lower first molar with gold, demonstrating the use of his new loop matrices. The cavity was situated in the distal and grinding surface of the tooth.

Dr. Madden, of the Empire City Electric Co., exhibited a new battery with only two cells, and a new electric dental motor.

The S. S. White Dental Manufacturing Co. had their great variety of dental instruments and teeth on exhibition, making a really wonderful display, and gave to visitors a more comprehensive idea of the resources of dentistry than could be obtained in any other way.

Dr. D. A. Williams, superintendent of the mechanical department of the New York College of Dentistry, exhibited five patients with fractures of the lower jaw, wearing interdental splints, which can be constructed from ordinary red gutta percha in about one hour.

Dr. W. Irving Thayer, of Brooklyn, filled a right upper lateral in the distal surface with E. Kearsing's gold, using for the introduction his new trip hammer. He also made some experiments out of the mouth.

Dr. J. A. Steurer, of New York, made some experiments with his new plastic gold.

Dr. Geo. F. Reese, of Brooklyn, cast a partial lower plate of his metal.

Dr. Henry W. Morgan, of Nashville, exhibited two upper central incisors, the roots of which were very short, and bent at right angles; also the roots of two other upper central incisors, which were exceedingly short.

Dr. Wm. Crenshaw, of Atlanta, Ga., filled for Dr. E. P. Brown a right upper first molar, the cavity, which was extensive, involving the mesial and grinding surfaces. He used for the introduction of the gold the electro-magnetic mallet.

Dr. T. D. Shumway, of Plymouth, Mass., filled a right upper lateral in the distal surface, using in the commencement of the operation White's velvet cylinders, followed by Nos. 3 and 4 of 1,000 fine foil, introduced by his ivory points.

Dr. R. J. Verplank, of Albany, N. Y., exhibited a new separator and matrix combined, made of two pieces of watch spring attached to two jack screws.

Dr. W. W. Evans, of Washington, D. C., filled a right lower second bicuspid, the cavity occupying the cervico-buccal portion of the tooth. He applied his new adjustable clamp for holding the rubber dam above the cavity, using No. 4 Rowan's gold, which was introduced by his mechanical mallet.

Dr. S. G. Perry, of New York, filled a left lower first molar in the mesial and grinding surfaces with gold, at the same time demonstrating the use of his separators. He used his new engine, which attracted great attention, and by many was declared to be the best engine ever produced.

Dr. J. G. Morey demonstrated the use of his nerve and crown drills.

Dr. John A. Daly, of Washington, D. C., exhibited numerous specimens of sets of teeth on rubber which had been lined with his gold.

Prof. Frank Abbott, of New York, exhibited his new automatic plugger with back action, which attracted much interest.

Prof. S. H. Guilford, of Philadelphia, Pa., exhibited his new set of steel matrices; also a new galvanic battery for the electro-magnetic mallet, which was afterward used by Dr. F. D. Gardiner.

Mr. W. H. Baldwin, a student of the New York College of Dentistry, exhibited a new mechanical mallet.

Dr. Geo. F. Reese, of Brooklyn, inserted four central incisor and a left upper first bicuspid crown, the posts of which had been cast in his metal.

Dr. C. E. Francis, of New York, exhibited the new A. P. Merrill gum forcep, and demonstrated its use in the mouth.

Dr. H. C. Register, of Philadelphia, exhibited his new engine and hot air and spray apparatus.

The Gibbs Electric Co., of New York, exhibited their electric motor and a mouth illuminating apparatus.

Dr. J. P. Geran, of Brooklyn, filled a right upper second bicuspid in the grinding surface with R. S. Williams' gold, which was introduced by the Herbst method.

Dr. G. W. Melotte, of Ithaca, made for Dr. L. S. Straw, of Newburgh, N. Y., a piece of bridge-work with two teeth. The bridge was attached to a cap enclosing the right upper second molar in the back, bridging over the first bicuspid, which was loose, the whole secured in front by means of a collar applied around the cuspid.

Dr. Lawrence Vanderpant, of Orange, N. J., showed a lower cheoplastic plate in combination with pink rubber, which had been exhibited at a meeting of the Odontological Society of Great Britain in 1866; also four other lower sets of the same material, in which C. Ash & Son's diatoric teeth had been employed. He also exhib-

ited a variety of artificial crowns made from C. Ash & Son's tube teeth.

Dr. B. H. Teague, of Aiken, S. C., sent a very serviceable arm rest, to be used at the chair during long operations, and some of his depressed disks, which were distributed.

Dr. Parr demonstrated his quick method of making and setting artificial crowns, the tooth being a left upper lateral. The root was first cut off, the labial edge being below the gum, the lingual left considerably longer. The root was then cut round with a disk, and a strap of 22 carat gold of 32 gauge quickly fitted around it with pliers. The edge of the strap was then cut even with the root surface, and a pure gold floor was fitted on it, being pushed up generally to fit the root surface. The strap and floor were then soldered together, and a hole drilled in the latter to receive the pivot, a three-cornered piece of platino-iridium wire. A plate tooth was then ground to fit the cap, backed by burnishing upon it a plate of the same pure gold that formed the floor, and the three parts—cap, pivot, and crown—were then joined with hard wax, put together in place on the root, removed, soldered, and finished. The completed tooth was set with oxy-phosphate. The doctor worked under great disadvantages, lacking many necessary facilities, and experiencing many annoying interruptions, in spite of which the operation was finished in one and one-quarter hours.

Dr. J. Rollo Knapp, of New Orleans, La., demonstrated his method of crown and bridge-work, which, as usual, was one of the great attractions of the Clinic.

CLINIC GIVEN WEDNESDAY, JANUARY 19TH.

Dr. C. F. W. Bödecker demonstrated the preparation of microscopical specimens, at the same time explaining several methods of treating tissues previous to cutting. To soften teeth and bone he advised the treatment with a solution of chromic acid of the strength of a half to one per cent. In about a quart of this solution a small number of teeth are immersed, renewing the solution at least once every week, and adding from two to five drops of dilute hydrochloric acid. This method may be employed for adult teeth, while in position in the jaws, as well as for embryos. Many other methods are employed, but in order to avoid confusion Dr. B. stated that he would only mention the simplest and most efficient. The treatment with chromic acid has for its object the softening of the

hard tissues, and the hardening of the soft ones, such as muscles, skin and myxomatous tissues.

When the tissues to be cut are of the proper consistence, which for teeth requires from two to three months' preparation, they must be imbedded either in paraffine and wax, or in celloidine. Previous to imbedding, the tissues must be laid in absolute alcohol for twenty-four hours, to abstract the water which they have absorbed from the chromic acid solution. They are then immersed in the celloidine, which is dissolved in sulphuric ether, and the latter allowed to evaporate slowly. After twenty-four hours the vial containing the celloidine is filled with absolute alcohol, which further hardens this substance, and after another lapse of a day will make the celloidine about the consistency of hard butter, when the preparation is ready for cutting. If this is done by a microtome, the imbedded tissue must be fastened to a cork, to which a piece of paper has been attached by means of a rather thick solution of gum. When the paper has been secured and well dried, a rather thin solution of celloidine is poured upon it, and the imbedded tissue put in the desired position upon the paper, and after five or ten minutes the cork, with the tissue to be cut, is immersed in alcohol again for about one day, when it is ready for cutting. During the process of cutting the tissue must be kept wet with absolute alcohol by means of a drop tube.

Dr. Bödecker explained that it was impossible to take a single specimen, soften, imbed, cut and mount it at one clinic. Therefore, after he had demonstrated the imbedding of specimens, he took another preparation from which he had previously cut some sections, and demonstrated the cutting by means of a microtome. When several good sections had been obtained, they were immersed in water, to which a few drops of carmine* had been added, and as there was no time to wait for staining the sections perfectly, which usually requires from six to twenty-four hours' time, they were removed from the staining fluid and mounted at once. The sections, which were from the lower jaw of a six to seven-months' human fœtus, were transported to the glass slide by means of a copper spoon, a little glycerine diluted with water added, and the specimen covered with a thin square glass cover. The surplus glycerine was

* The carmine solution is prepared by adding one drachm of carmine to one ounce of distilled water, with ten drops of aqua ammonia, and then filtering.

then very carefully cleaned off from the slide all around the cover by means of bibulous paper, and the latter was cemented to the slide by painting a rim of ordinary black asphalt paint around the edge of the cover. The specimen was exhibited under the microscope, and examined by most of the gentlemen, while Dr. B. explained the different parts of the fœtal tooth which were in the field of the microscope.

Dr. C. A. Timme, of Hoboken, N. J., filled a right upper first molar, the cavity of which was very large, occupying the mesial and grinding surface, using Wolrab's gold, which was introduced by the Herbst method. He also exhibited a new hypodermic syringe, to be used with the cocaine or morphia tablets.

Dr. S. G. Perry, of New York, filled a right upper first molar in the grinding surface with No. 4 Globe gold foil, which was introduced by means of glass rods, the points of which had been drawn out, curved at various angles, and rounded off in the flame of a Bunsen burner. These glass instruments were used in about the same manner as Dr. Abbott's hand condensors (see INDEPENDENT PRACTITIONER for February, page 81). The gold was condensed with these points to the satisfaction of all who examined the completed filling.

Dr. M. L. Rhein, of New York, filled for Miss J. a right superior first molar. The patient was seen for the first time on January 15th, when the tooth was found with a large amalgam filling occupying the anterior approximate, crown, and a large portion of the palatine and buccal surfaces. The filling was loose, and only held in position by the adjacent bicuspid. On removal a putrescent pulp was found, which was thoroughly removed by the aid of the Morse drills, and the cavity was disinfected with a bichloride of mercury solution, the root being filled with gutta percha and oxyphosphate of zinc at the same sitting. The tooth was perfectly comfortable at all times following. It was contoured at the clinic of January 19th, with gold, using a quarter ounce of the Wolrab German gold. The operation was performed by a combination of the Herbst rotary method and the electric mallet, the two methods being used alternately during the operation.

Dr. E. S. Talbot, of Chicago, exhibited his coiled wire spring for regulating teeth, in connection with many models, to demonstrate the various situations in which it can be applied.

By the use of gold or platinum bands around the teeth, or by using rubber plates, drilling retaining pits in sound tissue is avoided. This spring has several advantages over the Coffin plate. It requires less care in adjusting. With the Coffin plate it is uncertain which end has the greatest force, because it is distributed through a small body attached to a large one, which must exert its influence on the body to be moved. With this spring the force is exerted between two points, regardless of the shape of the wire or manner of application.

Another point in favor of this mode of operating is, that in mechanics it works better to have the force distributed from a small space to the body to be moved, rather than to have the end of the wire attached to a broad surface through which the force is distributed to the body to be moved. In the models exhibited, the appliances could, with one or two exceptions, be removed and cleansed by the patient without necessitating the attention of the dentist oftener than twice a week, and in one case the patient attended to adjustments for six weeks without any attention whatever. The advantage of the coil over a straight wire is exemplified in Dr. Coffin's W-shaped spring. He recognizes the advantage of a complexity of wires to obtain a uniform pressure. The Helix spring, in mechanics, is acknowleged to be the simplest form of spring, and is used in all small machinery, such as sewing machines, reed organs and watches, etc. From one to three coils will produce a gentle, uniform and constant pressure, at any required distance. The pressure can be regulated by changing the size of the wire. When the patient is young, and the teeth move easily, No. 18 will serve the purpose. From Nos. 18 to 23 may be used in ordinary cases, and No. 24 when the patient is older and the bones are dense. The object, however, is not to do the regulating rapidly, but slowly and surely.

In making the spring we drive a needle or wire into the bench, and with a hand vise catch it where the coil is to begin, and wind this about the needle as many times as it is to be coiled. Stop at the point it started from, that the coil may be inside the spring. This will give the arms of the spring a long range. Then cut the wire about two inches from the coil, which will give ample length for regulating any of the teeth. This can be cut to suit the case.

The wire will oxidize in the mouth, but retains a smooth surface, and will not be injurious, as it does not rust.

Dr. E. P. Brown, of Flushing, L. I., inserted for Dr. Wm. Crenshaw, of Atlanta, Ga., a right upper second bicuspid all porcelain bridge, which was anchored in the distal surface of the first bicuspid and the mesial surface of the first molar. In both of these teeth when the bridge was inserted, there were large cavities which were filled with gold, introduced by means of the electro-magnetic mallet. This operation attracted much attention, and was highly commended by those who witnessed it.

Dr. Chas. Hubbard, of New York, exhibited an upper bicuspid tooth which, in the year 1881, had been extracted, filled with gold, and replanted at the same sitting, by Dr. White. The tooth came under the observation of Dr. Hubbard in January, 1883, when it appeared to be perfectly healthy, except that the gum was slightly inflamed, and it had given the patient no trouble whatever, except for the first two days after it had been replaced. In October, 1884, the patient brought the tooth to Dr. Hubbard, stating that it had fallen out of its own accord. The root of the tooth was absorbed to such an extent that the remains of it, which measured only about one-quarter of an inch in length, in shape resembled a knife blade.

Dr. C. C. Carroll, of Meadville, Pa., demonstrated the use of aluminum in prosthetic dentistry.

This clinic clearly proved the practicability of making a complete dental plate of aluminum by casting, and the possession of the desired properties of great lightness, strength and durability.

The appliances used in making the cast are very simple, and apparently easy of employment, consisting of a cylindrical crucible, with a closely fitting tubular stopper, to which was attached a rubber bulb, by means of which the melted aluminum was injected into the matrix invested in an iron flask, with nipple attachment connecting with the crucible. Both the crucible and flask were heated in a small double chamber gas furnace, constructed to act automatically, so that when the aluminum was melted in the crucible placed in the lower chamber, the flask containing the matrix and invested teeth, placed in the upper chamber, will be raised to a temperature somewhat below the melting point of aluminum, and thus prevent the checking of the teeth in the act of casting. When the alumi-

num was melted, which required about six minutes, the crucible was placed above and in connection with the flask, and the molten aluminum forced by air into all parts of the matrix, producing a very perfect dental plate.

The difficulties formerly experienced in some mouths, by the etching of aluminum plates into holes, were explained by Dr. Carroll as being due to iron and other impurities contained in the aluminum used, and that the aluminum of commerce is entirely unsuited for dentures, on account of these impurities and its great tendency to contraction, which difficulties and objections are entirely overcome in the aluminum as prepared by Dr. Carroll.

He exhibited an aluminum solder, and demonstrated its use by soldering a hole made in an aluminum plate, using a common copper soldering iron without investing the plate, thus accomplishing very easily what has been regarded heretofore by workers in this metal a thing very difficult or impossible to be done.

This clinic elicited marked interest and much commendation on the part of all who witnessed it.

The teeth used were the S. S. White's ordinary rubber teeth, and the method of mounting was that usually employed for rubber work, except in the use of a very thin paraffine base plate of about No. 23, gold plate gauge.

Dr. R. F. Hunt, of Washington, D. C., exhibited specimens of vulcanite work lined with gold.

Dr. G. W. Melotte inserted the bridge piece made the day previous for Dr. L. S. Straw.

Dr. Register, of Philadelphia, Pa., exhibited a practical working pneumatic pump as a motor for his pneumatic mallet.

Dr. J. N. Farrar, of New York, exhibited illustrations of his method of regulating teeth.

Dr. Frank D. Gardiner, of Philadelphia, Pa., filled an upper molar; the cavity occupied the mesial and grinding surfaces. The gold was introduced by means of the electro-magnetic mallet, using a battery which had been exhibited the day previous by Prof. S. H. Guilford.

Dr. Wm. H. Atkinson, of New York, presented a patient for whom he had implanted two inferior incisors some months ago.

Dr. J. M. Crowell, of New York, carved a set of block teeth, which were baked and enameled.

Dr. W. P. Horton, Sr., of Cleveland, Ohio, exhibited Dr. Husted's pneumatic mallet, which was worked by a pump attached to a dental engine.

Dr. William H. Mitchell, of Bergen Point, N. J., exhibited an engine attachment for automatic mallets and pluggers.

The device, when attached to the instrument, does not interfere with the automatic blow, but enables the operator to use the rapid blow given by the device connected with the hand-piece of the engine, or the single stroke of the automatic at pleasure, without being detached from the hand-piece.

The device can be applied to all automatic mallets, but the one on exhibition was applied to the Richmond Automatic Plugger.

The blow given is rapid, and the sensation similar to that of the electric mallet.

Dr. John H. Meyer, of New York, made an upper continuous gum set, from the impression which was taken on the day previous. The set which had been carved, baked and enameled at the clinic, was satisfactory in every respect.

Dr. H. A. Parr, of New York, made and inserted a porcelain faced crown for an upper canine in the same manner as on the day previous.

Dr. J. Mapp filled a right upper third molar in the mesial and grinding surfaces.

Dr. R. W. Starr, of Philadelphia, demonstrated the removal of a live pulp with engine drills, applying an obtunder which, however, was unsuccessful.

THE BANQUET.

The banquet at Mazetti's was a fitting *finale* to this most interesting anniversary gathering. The menu was a very choice one, consisting of thirteen different courses, with eight varieties of wine. Plates were laid for 165 persons, the full capacity of the tables.

The first toast of the evening, as printed upon the menu, was the following quotation from Shakespeare: "Bid these gentlemen welcome; come! we have a hot venison pasty to dinner; come, gentlemen, I hope we will drink down all unkindness."

Dr. Wm. Carr, the President of the society, gave a brief welcome, and then introduced Dr. J. W. White, of Philadelphia, to respond to the toast, "Our Invited Guests." He began by telling, in his inimitable manner, a number of funny stories, and then said:

"What shall we, the invited guests, say of our hosts, the First District Dental Society? What, but that it has given the best and greatest meeting of our profession that has taken place since the world began. And the influence of this meeting; what shall it be? It will last until time's last whirlwind sweeps the sky."

Dr. C. A. Marvin, of Brooklyn, responded to the toast, "The Dental Profession." He said he was profoundly impressed with the wisdom of the officers of this society, for they had gathered together dentists from all sections of the United States. Never was a time in the history of dentistry when there was a greater number of dignified and able men engaged in its practice in the United States than now. The cause of extra growth of dentistry is due to our Associations.

The Rev. Dr. Brady E. Backus responded very felicitously to the toast "The Pulpit;" telling a number of laughable stories, and closing with a defense of the pulpit from the charge that its power is waning.

The next toast, "The Dental Society of the State of New York," was responded to by Dr. N. W. Kingsley, the President of the society. This was not one of the regular toasts as announced upon the menu, but was introduced at the request of Dr K., that he might be given an opportunity to speak concerning the coming Medical Congress. After some preliminary words concerning what of late has been his custom in making after-dinner speeches, he said that in speaking for the society which he represented to-night, he was individually responsible for what he should say. There was upon the bill of fare, as before them, one dish that had not been served others, although it was then in his mouth. He had gained considerable notoriety, he would not say reputation, of late, by opposing the dental section of the proposed Medical Congress, and arguing that dentistry was not a specialty of medicine. He proceeded to admit that "dentistry is a part of the healing art" and to regret that he had opposed the dental section of the Medical Congress, and hoped that all who were present at this, the grandest assemblage of dentists since the world began, would work earnestly to make the section a grand success.

Dr. W. W. Allport, President of the American Dental Association, then responded briefly to a toast in honor of that society, and at the midnight hour the meeting adjourned.

Editorial.

THE MEDICAL CONGRESS.

In "Current News" will be found the list of the officers and committees of the Section of Dental and Oral Surgery of the coming Congress. A considerable number of them have been appointed but recently. For those who have responsible places upon committees there is but little time left to do a great deal of work, and if a creditable exhibition is made, it will be because the members have shown extraordinary diligence. Since it is agreed that all shall unite in making everything possible of the section, not a day should be lost.

There still seems to be some misapprehension in the minds of dentists concerning the method of admission to the Congress. Every one should know exactly the status he will occupy. It has been asserted that the door has been opened yet wider, and that now dentists can enter upon conditions that were impossible but a short time since, or if this has not yet been done that it at once should be. A little reflection will convince any one that this is impracticable. This is a *Medical* Congress, and none but medical men can become members, unless as specially invited guests, or members by invitation. No degree save that of the M. D. *can* be recognized. A man may be an LL. D., D. D., Ph. D., S. T. D., B. S., B. A., M. A., may possess any or all these degrees, but they will not admit him to membership in the Congress. He may have all the learning of the schools, he may know more of medicine than Hippocrates himself, but if he have not the indispensable M. D., or its foreign equivalent, he is not actually a member of the medical profession, which makes that degree a *sine qua non*, and he cannot, except by special invitation, become a member of a Medical Congress. This has always been the rule in former sessions, and it cannot be changed by the representatives of one nationality, even though the meeting for the year is with them.

When the Congress met in London, the Prince of Wales, the Crown Prince of Prussia, the Archbishop of Canterbury and the other high church and state dignitaries became members, not through any degrees or titles which they held, but by special invitation. The President of the United States cannot become a mem-

ber of the Congress of 1887 in any other way. In a Medical Congress no degree is equal to the medical degree, and no diploma, save that of a regular medical school, can by any possibility be recognized, however much it might be desired, because that degree is the only qualification required.

It has been claimed that societies should be permitted to name those who are to become members of the Congress. As well might it be claimed that medical societies might elect representatives to a Presbyterian synod, or a Methodist conference. Those bodies are for members of the clergy alone. This is a Congress of another profession—the medical—and none but those who belong to that profession are entitled to membership. It should be comprehended that the Congress is not a delegated body. Medical men are not elected or nominated. They join simply as members of the medical profession, and no one, no matter what may be the sum of his knowledge, can have a prescriptive right to membership unless he belongs to that profession. A synod, a conference, or a medical congress may invite those who are not of their profession to a place, and in this way laymen might become members, but in no other way, unless special provision for lay membership exists in their constitution. Were it otherwise, the very boundaries which limit the professions would be obliterated, and there would no longer exist any professions. It seems to us inconceivable that any one should for a moment imagine or dream of the possibility of the acknowledgment of any degree by a medical congress, save the exclusively medical one, or conceive the absurdity of the admission of laymen into a society whose only qualification is a medical degree, unless it be as invited guests. What would be thought of the physician who should present himself at a meeting of the American Dental Association, and on the strength of his medical practice—he being, for all any one knew, the veriest quack in existence—should demand admission to membership? Would not his assurance be likely to receive a severe check? One has but to reverse the picture to see what must of necessity be the case with the Medical Congress.

Nor should it be conceived that the invited members occupy an inferior or subordinate position. The list will comprise all the dignitaries of the land, who are members. The President of the United States will have precisely that status. The Secretary of State will be an invited member. It is an extraordinary concession

that dentists who are without the medical degree will, very many of them, be invited, and will have every privilege in the Section of Dental and Oral Surgery that the oldest member has. Some of those who are officers of the section are without the M. D., but they obtain their membership precisely as will any others without that qualification. As members by special invitation, their position is much more honorable than though they joined by prescriptive right.

Not every one who is a dentist will be invited. This is a matter that is quite beyond the control of the Section. The Congress as a whole decides how many, aside from those who are entitled to membership through belonging to the medical profession, shall be invited. It allots a definite number to each State. This it has the right to do, and it assumes that right and acts upon it. We might desire that the rules of the Congress were otherwise, but we must accept them as they are, and no power, save that of the Congress in full session, can abrogate or modify those rules. They are a part of the organic laws of the organization, and must be obeyed.

Every dentist, then, who is without the medical degree, can only become a member of the Congress by receiving a special invitation. It has always been so, and probably always will remain so. We plainly stated that in an editorial in this journal more than two years ago, and as a member of the Congress which met in London we felt that we had some knowledge of the subject of which we spoke. In the number for February, 1885, we said : "As a medical body it is, of course, quite impossible for the Congress to recognize any but their own distinguishing medical degree of M. D. A reference to the first rule will convince any one of this," and in the succeeding number, we said that some provision must and would be made for the admission of those who are without this degree. The only provision possible, and the very one which has been active in former sessions, has been made, and therewith we must rest content. If ever a dental congress is called to meet in America, it will be our province to determine the conditions of membership, and then those who are only medical men must, if they would become a part of such a congress, come in by the door which we shall open. Certainly, they can have no prescriptive rights, unless the call is for dentists *and* general practitioners, any more than they would have in a congress of ophthalmologists or dermatologists.

We have thought it but just that this subject should be fully comprehended, for there are those who insist that every practicing dentist should be admitted without question, whereas such a thing is an utter impossibility, no one having the power to throw down the barrier. Dentists must come in as does every one else—either as medical men or by special invitation, the privileges of both in the Section being identical.

NEW YORK SOCIETY REPORTS.

In this number will be found the report of the special meeting of the First District Dental Society of New York. Our right to publish these reports has, we understand, been questioned. It is well known that a bargain has been made with the S. S. White Dental Manufacturing Co., which gives to *The Cosmos* the official reports of this society, and that of the Odontological Society of New York. We have no desire to trench upon the rights of others, and certainly would not print what we have if we thought we had no privilege in the matter. This journal is not published by men who have no sense of honor, or who would engage in defrauding a respected contemporary, nor is it reduced to such extremities that these or any other particular reports are necessary to its existence.

As we understand it, these New York societies hold open meetings. All are invited to attend. If one of the New York daily papers desired to make a report of the proceedings, its representative would be welcomed, and why should the privilege be denied to a respectable journal of their own profession? These societies do not profess to hold their sessions for the exclusive benefit of any one person or journal. Some of the publishers of this journal are active in their support, and hold official positions in them. They fully comprehend that all the official papers, the report which is made by the properly appointed officer for *The Cosmos*, and all the regular and voluntary addresses which may be made, are the property of that journal.

But does this agreement forbid another journal to make an abstract of the proceedings at its own expense, and to publish such syllabus, all the time fully respecting the exclusive right of *The Cosmos* to publish the papers in full and to have sole access to the official records? If it be so, we shall certainly abide by the terms of that agreement, for we wish only that to which we are honestly entitled. Some of the publishers of this journal have read papers before the New York societies, but their manuscript was never per-

mitted to be seen by the editor, nor were they even asked to make an abstract for him. Usually, very little reference was made to such papers, lest it be thought that an unfair advantage was taken. If any abstract was given it was brief, and obtained precisely as the other matter was—at our own expense.

Dental societies are supposed to exist for the furtherance of professional ends, and for the spread of scientific information. If the scope of any society contemplates a selfish object, it should be so stated in its laws, that dentists who contribute papers may have a fair understanding of the matter. If a society proposes to sell its knowledge, or to make merchandise in any way of the free contributions of its members and others, it should be so nominated in the bond. If a specialist in any department makes a long journey, and is at considerable expense to demonstrate some new principle in dental science, he usually does so because in that way he can best communicate the intelligence to the world. His address is intended for the profession at large, and not for any clique or segregated part of it. He does not anticipate that the society will close up any avenues of information, but that they will allow the widest publicity, for his labors are for the public good.

Again, the members of dental societies are supposed to be laboring, not for their own selfish benefit, but for the good of all—to advance the interests of the profession at large. Any other theory would imply a retrogradation to the dark days when the doors of every dentist were closed against his brother, and were only open to the sesame of money; when knowledge was bought and sold, and when there was no such thing as true professional feeling. Our present greatest boast is, that among no class of men is there more of the true spirit of professional ethics, and it is to this fact that we owe our wonderful advance. Every progressive dentist comprehends that his status is only to be permanently raised by elevating his whole profession. We believe, then, that the true spirit of dentistry is to give the widest possible publicity to all professional knowledge.

But every society has the undoubted right to select an official medium for its official communications, and that right should be respected by all. The American Dental Association has exercised this right, but it has never been understood that the bargain with the S. S. White Dental Manufacturing Co. precluded other journals

from publishing a fair abstract of the proceedings, nor has their right to do this been questioned. When it is, we shall say that the society has no longer an excuse for existence, for it will be violating all the true ethics which it is supposed that it is its mission to maintain. We have always thought that the publishers of its transactions had the hardest end of the bargain, and believed that they made it more to help the society than for any other reason, and we have always questioned the propriety of accepting that aid. The society is not supposed to be a money-making concern, and when the principle which controls the publication of its transactions is penuriousness or avariciousness on its part, it is pursuing an unworthy course.

We have written this in a spirit of frankness and honesty, and let it not be understood that we are in the remotest degree implying any censure of the S. S. White Dental Manufacturing Co. They have been entirely honorable and generous, so far as we know, and have never made any complaint to us whatever. But we would not have them, or any one else, think that what we do has been done in a clandestine manner, or with the desire or intent of inflicting an injury upon a respected and revered contemporary. There has never been any ungenerous rivalry between *The Cosmos* and this journal, and we trust there never will be. There is room for both, and we hope that the regard we have for that great journal and its editor is, in a measure at least, a mutual feeling. The only complaint that we have heard concerning the publication of the reports of the New York societies comes from those who, we think, do not quite comprehend the matter, and it is for the purpose of pointing out the stand-point from which we view it that this article has been written.

PROFESSIONAL COURTESY.

It would do no member of a dental society any harm carefully to study the address of Dr. J. N. Farrar before the American Academy of Dental Science, as published in our February number. There is no disputing the fact that English societies are conducted in a far more decorous manner than are our own. We sometimes criticise the excessive formality observed at their meetings, but that is infinitely better than the unparliamentary license, the undignified attacks and the unprofessional repartees occasionally indulged in among us. We are earnest in our discussions, but that is no excuse for ungentlemanly conduct. There is no denying that we have professional bullies in some of our societies, who hector and browbeat

and insolently treat other members, and too often the listeners, instead of promptly hissing down such swaggerers, and showing their disapprobation of their boorish actions and lack of good breeding, rather applaud the vulgar conduct. It is time that a reform was worked in this matter.

We have more than once seen an honest and well-informed but diffident dentist, who was the guest of a dental society, especially invited to read a paper before it, attacked in the most violent manner, accused of culpable ignorance and lack of common information by some voluble blusterer, in defiance of every principle of hospitality and every sentiment of generosity, and left by the presiding officer and the members to be worried and bull-baited till what of courage he once possessed was completely gone, and he could only vow never again to present a thesis before a society of dentists.

This is all wrong. If a young man — or an old one — presents incorrect theories, or is mistaken in his supposed facts, why is it not as easy to correct him gently? Why should not the decencies and amenities of common society be observed in our meetings at all times? It is not for every one to have an expert knowledge of parliamentary rules, but certainly no dentist who is a gentleman need be totally ignorant concerning—as he certainly will not be entirely regardless of — the commonest instincts of politeness. We have known a member of a society to interrupt another by coarsely, loudly and insolently crying out, "I call the gentleman to order!" and to repeat this whenever the speaker opened his mouth. Such brawling should not be permitted. No one should be so ignorant of parliamentary rules of procedure as not to know that it is only the chairman who can call a member to order. If one believes the rules of order are being transgressed he may "rise to a point of order," and when the chairman calls upon him may "state his point of order," but his words should be addressed to the chair. Indeed, under no circumstances is a member privileged to address any one but the presiding officer when a meeting is in session. This is one of the fundamental laws of procedure, and in English societies it is never disobeyed without rebuke.

We would not be understood as implying that the conduct we have been condemning is common among us, but it is far too frequent when it occurs at all, and hence we are sure that a study of Dr. Farrar's paper would benefit every one. A much greater degree of courtesy in our society meetings would greatly increase their efficiency.

COMPLIMENTARY.

Our readers will bear witness that this journal has not often indulged in self-glorification. We have received many letters of congratulation and praise that were warmly appreciated, but we feared that we should be liable to a charge of undue boasting if we printed them. The following, however, coming as it does from one of the oldest and most revered of our number, we cannot refrain from printing: 1 Mt. Vernon St., Boston, Feb. 4, 1887.

Dear Mr. Editor:—I am happy to enclose postal note for $2.50, for the continuance for 1887 of The Independent Practitioner, which I consider the very best journal, in its line, that is published in the world.

I am much gratified with the solid and impregnable front it opposes to every attack on our department of practice. The article by Dr. Marvin, in the February number, shows an ability to comprehend and logically to elucidate fundamental scientific principles, that I do not believe can be exceeded in the ranks of the specialty or of the parent profession. Very truly yours,

Jacob L. Williams.

AMERICAN SYSTEM OF DENTISTRY.

We have received from the publishers, Lea Brothers & Co., the second volume of this work, which includes operative and prosthetic dentistry. The papers which it contains are by Henry A. Baker, Alonzo P. Beale, A. G. Bennett, C. F. W. Bödecker, W. G. A. Bonwill, Theodore F. Chupein, W. W. Evans, S. H. Guilford, William R. Hall, A. W. Harlan, Robert S. Ivy, Louis Jack, Edward C. Kirk, Wilbur F. Litch, S. B. Palmer, D. D. Smith, Thomas C. Stellwagen, William H. Trueman, James Truman and George W. Weld. When the whole is in our hands we shall give to it the attention and space which its importance demands, but it is impossible to review so comprehensive a work by piecemeal. We can, however, say that it is a very handsome volume indeed.

CROWDED OUT.

The report of the January meeting of The Central Dental Association of Northern New Jersey is deferred till the appearance of our next number. Either both that and the report of the First District meeting must be divided, giving but a part of each in this number, or one of them must be held over. As the latter was first received, it is printed this month, and the other will appear in full in the April number.

Current News and Opinion.

NINTH INTERNATIONAL MEDICAL CONGRESS, WASHINGTON, D. C., SEPTEMBER 5, 1887.

President—N. S. Davis, M. D., LL. D.

Secretary General—John B. Hamilton, M. D. of U. S. A.

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Dr. D. McFarlan,
Dr. James McManus,
Dr. W. W. H. Thackston,
Dr. E. A. Bogue,
Dr. F. H. Rehwinkel,
Dr C. F. W. Bœdecker.

Committee on Operative Dentistry and Oral Surgery—Clinics.

Dr. C. F. W. Bœdecker,
Dr. J. A. Watling,
Dr. R. L. Cochran,
Dr. F. Abbott,
Dr. W. C Wardlaw,
Dr J. D. Patterson.

Committee on Prosthetic Dentistry.

Dr. George L. Field,
Dr. H. B. Noble,
Dr. A. O. Hunt,
Dr. John Allen,
Dr. T. T. Moore,
Dr. N. W. Morrison,
Dr. R. B. Donaldson.

CASES OF SKIN ERUPTIONS AND SYPHILIS TREATED WITH HORSFORD'S ACID PHOSPHATE.

It appears to me that the "Acid Phosphate" originally prescribed by Prof. Horsford, of Cambridge, U. S. A., is not so well known in this country as its merits deserve. A glance at the formula will, however, readily convince one of its value in suitable cases. Each fluid drachm gives on analysis five and one-half grains of free phosphoric acid, and nearly four grains of phosphate of lime, magnesia, iron and potash. The following are a few brief notes of some of the cases in which I have prescribed it with complete success.

Mr. G., æt. 69, consulted me November, 1885, for eczema on the arms, legs, palms of the hands, and trunk. The patient complained of much debility and nervous exhaustion, and he was a man who had led a very busy business life, with much worry. In December, 1885, I prescribed Horsford's acid tonic with much good effect, as in February, 1886, I heard that he was quite well.

Mrs. S , æt. 46, consulted me in December, 1885, for psoriasis, all over the body, more or less, especially on the legs and arms. In January, 1886, I prescribed a teaspoonful of the acid tonic three times a day with marked good effect. Patient had been much exhausted by continuous nursing of an invalid mother.

Mr. C., æt. 64, consulted me in September, 1885, with one of the worst attacks of late syphilis I ever saw. After he had been relieved from the distressing symptoms and ulcerations, I prescribed the acid tonic for epileptiform fits from which he suffered, with excellent results.

Mr. McJ., æt. 63, consulted me in November, 1885, for lichen ruber, which was accompanied with intolerable itching. He was a nervous, irritable man. I prescribed the acid tonic with the effect that in December he presented himself quite convalescent.—*James Startin, Medical Press, London, Eng.*

DENTAL JOURNALS WANTED.

The editor of this journal will pay cash for the following numbers of dental journals, or an exchange will be made with those who desire to complete their own files:

THE DENTAL REGISTER.

Vol. III , Nos. 1, 2, 3.
Vol. VI., Nos. 1, 2, 3, 4.

AMERICAN JOURNAL OF DENTAL SCIENCE, (THIRD SERIES.)

Vol. II., No. 8.
Vol. VII., Nos 7, 10.
Vol. VIII., Nos 6, 7.

CHICAGO DENTAL CLUB

The Chicago Dental Club held its annual meeting at the Tremont House, Monday evening, January 24th, when the following officers were elected :

President—L. P. Haskell, D. D. S.
Vice-President—John S. Marshall, M. D.
Secretary—Arthur B. Freeman, M. D., D. D. S.
Treasurer—Dr. E. M. S. Fernandez.
Business Committee—Eugene S. Talbot, M. D., D. D. S ; Dr. Austin Freeman and Charles P. Pruyn, M. D., D. D. S.

Very courteously yours,
ARTHUR B. FREEMAN,
Secretary C. D. C.

VERMONT STATE DENTAL SOCIETY.

The eleventh annual meeting of the Vermont State Dental Society will be held at the Van Ness House, Burlington, Vt., Wednesday, March 16, 1887, commencing at 7.30 P. M. and continuing through Friday.

Members of the profession in this State and others are cordially invited to be present, and are requested to bring specimens or models of cases in practice, and time for this exhibition will be given. The depots will exhibit their supplies as usual. Railroads will give return checks.

THOS. MOUND, Secretary,

THE NEW YORK MEDICAL JOURNAL says that the struggles of young doctors are hard enough, as few, if any, of our readers need to be reminded. To those who are inclined to regard their own prospects as gloomier than if they had chosen some other profession, we commend an advertisement that lately appeared in *The Daily Register*, the New York law journal, in which "an experienced attorney" offered his services to any law firm at a salary of five dollars per week.

The Purity of Mid-Atlantic Air.—In the course of an address on the action of micro-organisms on surgical wounds, Prof. F. S. Dennis, of New York, states that during his last trip across the Atlantic he made some experiments to test the purity of the air 1,000 miles from land. He employed capsules of sterilized gelatine, and exposed them for fifteen minutes. One capsule was exposed in the state-room upon the main deck of the steamer. Within eighteen hours 500 points of infection had developed. Two capsules exposed in a similar manner in a cabin on the promenade deck, where the circulation of the air was free, showed five or six points of infection ten days afterward. A capsule exposed over the bow of the ship was found to be entirely uncontaminated. These experiments are on the same line with those of Pasteur and Tyndall upon the mountain air of Switzerland; and, so far as they go, they show the germless condition of mid-ocean air, and also the need for much more efficient ventilation in the state-rooms of even the first-class American lines.—*Lancet.*

Certain Alienists, notably Moreau de Tours, have claimed that genius, especially poetic genius, is a neurosis, and that the man of genius is but a

> Poor lunatic, who makes his moan,
> And for a while beguiles his lookers-on.
> He reasons well; his eyes their wildness lose,
> But if you hit the cause that hurts his brain
> His eyeballs roll, and he is mad again.

Nathaniel Lee, the periodical lunatic, who wrote these lines, had very good reason for accepting this theory. Nor is Nathaniel Lee the only mad poet. Lucretius, Marlowe, Ben Jonson, Bunyan, Wycherly, Tarquato Tasso, Molière, Swift, Pope, De Foe, Rousseau, Goldsmith, Johnson, Savage, Cowper, Byron, Walter Scott, Coleridge, De Quincey, Rogers, Southey, Shelley, Emerson, Saxe, Cobb and Victor Hugo, all suffered from insanity.

Poetry is an emotional outburst of a perception of similarities in unlike things. Hence the "fine poetic frenzy" of the poet is not unlike the emotional exaltation of the insane.—*Neurological Review.*

At the Annual Meeting of the Central Dental Association of Northern New Jersey, held at 764 Broad Street, Newark, N. J., February 21, 1887, the following officers were elected:

President—S. C. G. Watkins, Montclair.
Vice-President—George E. Adams, South Orange.
Secretary—James G. Palmer, New Brunswick.
Treasurer—Charles A. Meeker, Newark.

Executive Committee.

B. F. Luckey, Paterson, Oscar Adelberg, Elizabeth,
C. F. Holbrook, Newark, Wm. P. Richards, Orange,
Jacob Simonson, Newark.

James G. Palmer, Secretary.

It will always be hard to understand how the thousands of tons of snow which fall in a single storm can be suspended in the upper regions of the atmosphere. We know the snow is formed from the condensation and freezing of aqueous vapor, or steam; but when we learn that a cubic foot of snow which falls is condensed from 1,728 cubic feet of aqueous vapor, the amount necessary to form the snow of a single storm is almost beyond one's powers of calculation.

With condensation of snow from aqueous vapor, an immense amount of so-called latent heat is set free. In the condensation of a single pound of steam to water, enough heat is evolved to raise a pound of water from 0° to 972° Fahrenheit, and an additional amount of heat is given out when the water is frozen into snow or ice. It may be said that a fall of snow is equivalent to a fall of red hot sand as far as the heat produced in its formation is concerned; and although this snow may not produce any appreciable effect upon the temperature of the air at the surface of the earth, yet it shows the tremendous energy of the operations taking place in the upper air, and the enormous amount of cooling necessary to produce a single fall of rain or snow.—*Popular Science News.*

The *Revue Scientifique* claims the first thought of the germ theory of disease for a Dr. Goiffon, who died at Lyons more than 150 years ago. He believed, in 1721, that diseases, like a plague, could be caused only by minute insects or worms, too small to be seen perhaps, but nevertheless really existing. He also believed that the conveyance of infection could be explained by their activity and propagation.—*Medical News.*

It should be comprehended that the germ theory of diseaes does *not* claim the existence of "minute insects or worms" as the cause of disease. It is only ignorant people who suppose this. Micro-organisms are of a vegetable nature, rather than animal. They are microscopical *fungi.*—Editor.

Prof. Sergei Petrovich Kolomin, Professor of Surgery in the University of St. Petersburg, and one of the most brilliant surgeons in Russia, committed suicide on the 23d of November last, by shooting himself in the head with a pistol. In operating on a female patient for what he took to be a tubercular disease of the rectum, he injected into the viscus twenty-four grains of cocaine, which caused the patient's death. The autopsy showed that the diagnosis was a mistaken one. The affair so preyed upon the mind of Prof. Kolomin, that he resorted to suicide for relief.

A new journal has just appeared in Germany, entitled the *Centralblatt fuer Bacteriologie and Parasitenkunde.* It is published weekly, and will be devoted to all that pertains to the study of bacteriology. The editors are Dr. Oscar Uhlworm, of Cassel, Dr. Lenchart, of Leipzig, and Dr. Lœffler, of Berlin. The publisher is Gustav Fisher, of Jena. From the two issues that have thus far appeared, we should judge that it will be a welcome guest in America as well as in Germany, especially to those who can read the German.

It is a cause of regret to know that Dr. J. S. Jewell, who projected and published the first numbers of a new journal of psychiatry called *The Neurological Review*, has, on account of ill-health, been compelled to suspend it for the present. The known ability of Dr. Jewell and his thorough knowledge of his specialty gave assurance of an excellent journal, and the few numbers issued were a demonstration and foretaste of the excellence that was to have characterized the new journal.

Said a lady patient the other day, "I always know before I get up in the morning whether the day is to be a pleasant or stormy one"

"Indeed," was our reply, "pray state the indications?"

"Well, the gentleman residing in next house is a pretty good liver, and has the gout. If a storm is approaching, he groans dreadfully all night, but if the weather is to be clear he is quiet." F.

Dr. L. C Ingersoll's "Questions and Answers in Dental Science" is meeting with an unusual measure of success, and has gained the unqualified approval of many of the best men in dentistry. For a book that was so modestly issued, it has attracted a great deal of attention. Dr. Ingersoll is himself a thinking man, and to any one who reasons for himself his writings have an irresistible charm.

The Janitor of a very dirty suite of offices had posted up at the entrance the notice: "Visitors will please wipe their feet."

A practical joker, after having inspected the apartments one day, added the following: "On going out."

Warts may be cured, says a German medical journal, by brushing them carefully once a day with a solution of fifteen grains of corrosive sublimate in one ounce of collodion. This remedy is said to be more efficacious, and it is certainly more convenient, than many other preparations recommended.

Dr. A M. Dudley has been presented by Provincetown Post, G. A. R., with a cane of historic interest, as a mark of their appreciation of his interest in their organization.

Dr. George L Field, of Detroit, Mich, is about these times taking a vacation in Florida, in the land of the myrtle and the palm, of the mosquito and the alligator.

"The Doctor" is the name of a new semi-monthly medical journal published in New York. It is very sprightly and as full of original matter as a new-laid egg.

Creosote three parts and collodion two parts, when mixed, make a solid mass which is very convenient for office use.

Steel, when hardened, decreases in specific gravity, contracts in length, and increases in diameter

---

Lavoisier, the famous French chemist, was guillotined by his countrymen.

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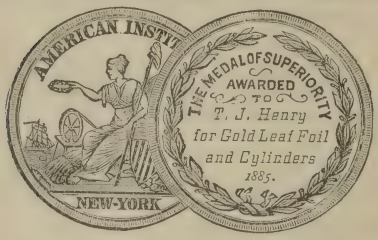

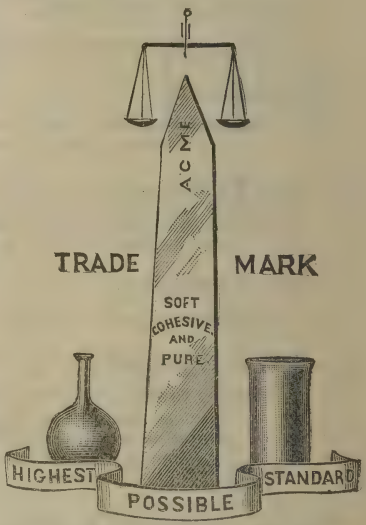

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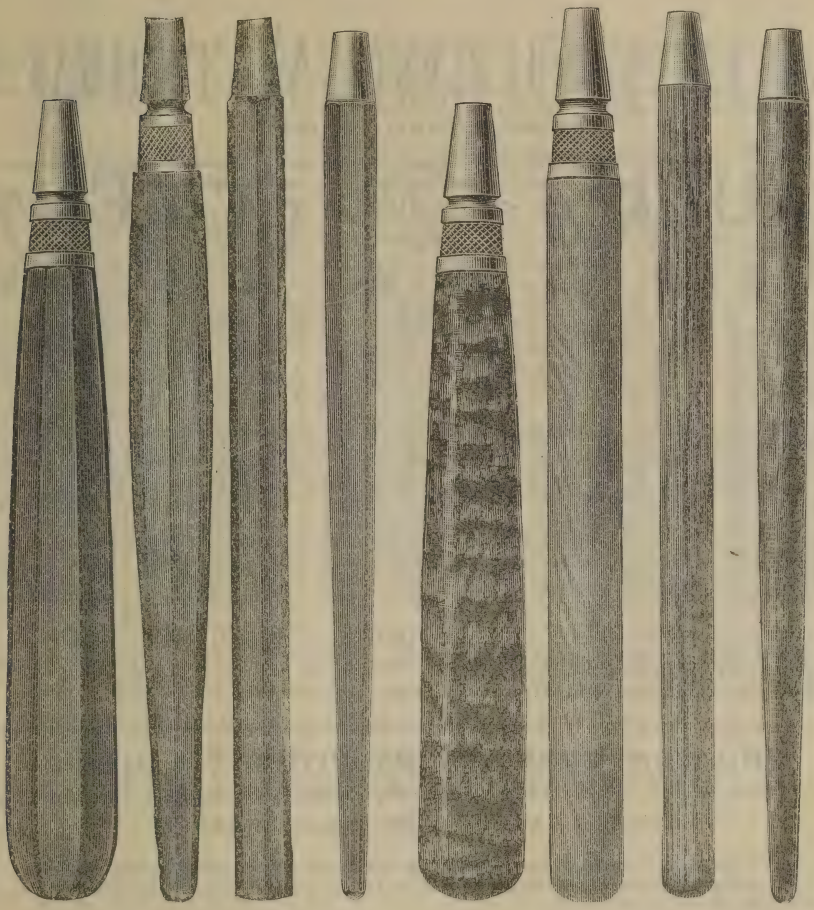

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Price, in ⅛, ¼, ½ and 1 ounce packages, per ounce, (reduced to) $2.00.

We make a specialty of manufacturing these materials for filling teeth.

Over Fifteen Thousand (15,000) Dentists are using these Materials throughout the civilized World. What better evidence do you wish of their Superiority and Excellence?

Publisher Caulk's Dental Annual for 1886-'87, No. V. Price, 50 Cents.

L. D. CAULK, Manufacturer and Proprietor, CAMDEN, DEL.

SOLD AT ALL DENTAL DEPOTS.

COGSWELL'S

Disk Carrier and Guard

MADE BY

CODMAN & SHURTLEFF,

167 Tremont Street, BOSTON, MASS.

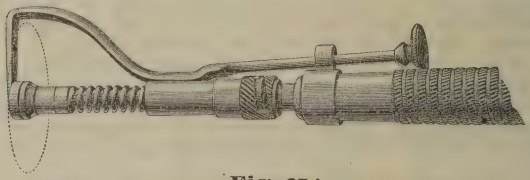


Fig. 214.

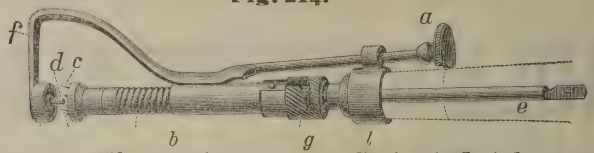


Fig. 214 A. **Patented Feb. 10, 1885.**

This invention will be found indispensable by every dentist who values time, as it will enable him to attach the much used Disk to the Engine Mandrel in a small fraction of the time required by other methods.

It is represented in the figures as connected to the Hand-piece. In Figure 214 the holding device is represented as closed, the outline of Disk being indicated by circle of broken lines. In Figure 214 A, it is shown as opened by slight pressure of the thumb or finger against the knob *a*, ready to receive the disk. Upon relaxing this pressure the spring *b* closes upon the disk, which is centered upon *d*, perforated by four hardened steel points, *cc*, and thus securely held ready for rotation. The carrier is attached to the Hand-piece by insertion of the Mandrel *e*. A friction ferule *l* overcomes slight tendency of bracket *f* to rotate, and enables the operator to retain the guard opposite that portion of the disk where it will most effectually guard cheek, tongue, or other part from injury, or, prevent interference with rubber dam. At *g* is a locking sleeve, employed only when in the use of stiff disks there is a tendency to overcome pressure of spring *b*, and permit loosening of disk.

The Carrier will receive disks of ⅛ inch diameter down to ⅜ or even smaller. It may be rotated in either direction without loosening the disk, as occurs with the ordinary screw-held disk.

PRICE, $2.50.

We are prepared to supply the Disk Carrier and Guard to fit the S. S. W. Hand-pieces, Nos. 5 and 6, Hodge's and Bonwill's Improved, at this price. Other Hand-pieces, if sent us, will be fitted to order at the same price, or at a moderate additional charge. ***In ordering, state what Hand-piece is used.***

MESSRS. CODMAN & SHURTLEFF : BOSTON.

Gentlemen,—The new Disk Carrier, with guard, which I have fully tested, is very satisfactory in all respects. I prefer it to any other pattern now in the market.

ISAAC J. WETHERBEE, D. D. S., *Pres. B. D. C.*

From J. B. Coolidge, M.D., D.D.S., Professor of Clinical Dentistry, in Boston Dental College.

MESSRS. CODMAN & SHURTLEFF:—

The new Disk Carrier which you sent me is the best. It will very soon save its cost in the time required for changing the disk. The guard will be found of great use in protecting the cheek, tongue, and rubber dam from the action of the disk. I would recommend it to every Dentist.

J. B. COOLIDGE.

From J. A. Watling, D.D.S., Professor of Operative Dentistry, Michigan University.

MESSRS. CODMAN & SHURTLEFF,
167 Tremont Street, Boston, Mass.:

Dear Sirs,—Your Disk Carrier received. After several careful trials, I feel justified in recommending it to the profession as a very useful and valuable addition to a dentist's outfit.

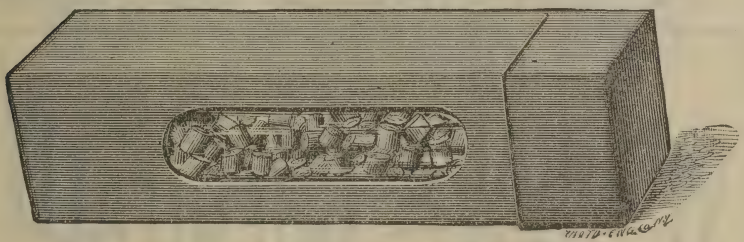
It is one of the best that I ever used. Is readily applied to the engine, and to replace the old disk with a new one requires but a few seconds.

The protector, while holding the disk firmly in place and being all that is necessary for the prevention of injury to the mouth, does not shut off the view of the filling to be finished.

It is indeed an instrument to be desired by all careful practitioners.

1-6-an-1 Respectfully, J. A. WATLING, D. D. S.

EXTRA PLIABLE DECIMAL GOLD ROLLS.



(This Engraving represents a Phial of size 1 of the above designated Gold, inclosed in a Box.)

Gold Foil and Gold Rolls, per 1-10 ounce,	$3.00.	Per ounce, $28.00
Extra Pliable Decimal Gold Rolls, per 1-10 ounce,	3.50.	Per ½ ounce, 17.00
Untrimmed Foil, per 1-5 ounce book,		5.50
Ideal Cement, per package, with Pigments,		1.00
Rowan's Ideal Alloy, No. 1, per 1 oz. $5.00, 2 ozs. $9.00, 4 ozs.		16.00
Rowan's Ideal Alloy, No. 2, per 1 oz. $3.00, 2 ozs. $5.50, 4 ozs.,		10.00
Tin Foil (our make), very tough, per book,		.50

Try some of our "Ideal" Cement Filling and "Ideal" Alloy.

Appended are testimonials for our preparations of Gold from well-known gentlemen:

I have used the Rolled Gold of Edward Rowan & Co., and like it very much. I prefer high numbers—30, 60 and 120—for facility of adaptation to walls of cavities, capacity to bear high annealing and making solid work, I know no superior make.

W. H. ATKINSON,
October 23, 1882. 41 E. 9th Street, N. Y.

271 N. Eutaw Street. BALTIMORE, Md., June 5th, 1883.

GENTLEMEN—I have used nearly all of the last ounce of your "Extra Cohesive" Decimal Gold Foil No. 4, and it affords me pleasure to inform you that it has *proved* to be a *first-class article* in every respect. It is *cohesive* and *tough* in the *highest degree*, yet possessing *less harshness* than is usually found in cohesive foils. I cheerfully thus refer to it, and so long as you continue to make such foil, I want nothing better. Very respectfully,

JAS. H. HARRIS, M. D., D. D. S.

No. 100 Boylston Street. BOSTON, MASS., June 30, 1883.

Sirs—I have used your Rolled Gold for several years. When I wish to use *cohesive* gold, I prefer your No. 30 Rolled to any gold with which I am familiar. It is very tough, soft and cohesive. In short, pleasant and easy to work, and makes a compact, even and finished filling.

Yours truly,
L. D. SHEPARD,
Late Professor of Operative Dentistry, Harvard University.

S. H. GUILFORD, A.M., D.D.S., (*Professor of Operative and Prosthetic Dentistry, Phila. Dental College,*) has permitted us to state that he uses and recommends our "Gold Rolls."

DR. H. J. MCKELLOPS, of St. Louis, writes us, under date September 16, 1884, "You may use my name in connection with your Gold with pleasure."

H. C. REGISTER, M. D., D. D. S., of Philadelphia, writes us, "You are permitted to use my name in recommending your Gold, as second to none in the world!"

CHAS. L. STEEL, M. D., D. D. S., of Richmond, Va. (*Demonstrator Operative Dentistry, University of Maryland*). DEAR SIRS—Your last ounce of Gold duly received, and, as usual, works superbly. I have used many makes of Cohesive Foil, but for some time past have confined myself to yours exclusively, as I find none other so near perfection.

A. H. FULLER, M. D., D. D. S. (*Professor of Operative Dentistry, Missouri Dental College*). Should you so desire you may state that I have been using your Gold for the past year or more, and find it first-class in every respect. Shall send you an order in a few days for more.

WM. CARR, M. D., 35 West 46th Street, New York, permits us to state that he endorses our Golds. He uses Nos. 3 and 4 soft; No. 60 Rolled; and Gold Rolls.

EDWARD ROWAN & CO.

No. 1048 Third Avenue, S. W. Corner 62d Street, New York.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

REFERENCES FURNISHED ON REQUEST.

C. A. TIMME & CO. Importers of

CASH MUST ACCOMPANY THE ORDER.

COHESIVE, SOFT No

WOLRAB'S PURE CHEMICALLY

GOLD FOIL

C. A. TIMME & CO.

IMPORTERS of DENTISTS SPECIALTIES

SOLE AGENTS FOR THE U. S.

190 HUDSON ST. HOBOKEN N. J.

CUT OF FOIL ENVELOPE

Foil, $4.00 per ⅛ oz., $15.00 per ¼ oz., $30.00 per 1 oz.

On orders of two ounces and more at a time a reduction of 50 cents per ounce will be given.

This gold is made in reference to the HERBST method of filling teeth with the engine. It has also proven a very desirable article for the *mallet* and *hand-pressure*.

We claim it to be superior to any other make for its peculiar *softness*. It easily adapts itself to the walls of the cavity, and when properly manipulated it makes a *solid* and *cohesive filling*. If it is to be used cohesively, a slight *warming over* the flame will have the desired result.

Very good reports have been received from prominent practitioners.

Timme's Imported German Phosphate Cement, per box, $1.00.

1/8 oz

CELEBRATED

WOLRAB'S GERMAN GOLD.

№ 0 1 2 3 4

CHEMICALLY PURE

for the HERBST METHOD

MADE EXPRESSLY of filling TEETH

C. A. TIMME & Co IMPORTERS OF DENTISTS SPECIALTIES

SOLE AGENTS FOR THE U.S.

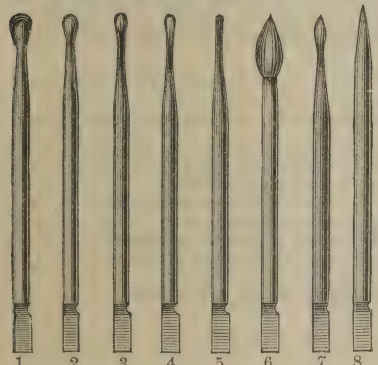
HUDSON St. HOBOKEN N.J.

LABEL FOR CYLINDER BOXES.

CASH MUST ACCOMPANY THE ORDER.

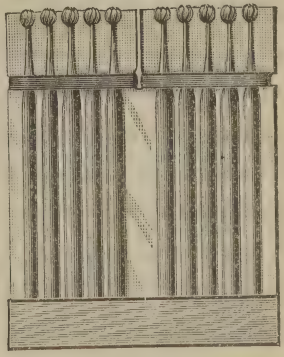
Cylinders, $4.50 per ⅛ oz., $17.00 per ½ oz., $34.00 per 1 oz.

Instruments for the Herbst Method



Made of Agate, per set, - - - $10.00
The same made of Steel, as shown in the cut, per set, - - - - - - 4.00

Imported Burs, Stone Cut.



Unequaled in temper, arranged on wooden cards, per card of ten, - - - $ 3.00
In boxes of ten cards, - - - 25.00

AN-3-2-5.

HARDMAN'S WHITE ALLOY

Takes the place of gold for filling front, or any teeth.

PRICE, $3.00 PER OZ.

Test for Color—Place a button of Amalgam, that has one surface polished, into a solution of 40 to 60 grs. of sulphuret of Pottassa in 1 oz. of water. Let remain 24 to 48 hours.

Test for Leakage—Fill a small glass test tube with it, just as you would a cavity in a tooth, and drop it into a bottle containing an alcoholic solution of red aniline.

This Alloy Stands These, and Any Other Tests Deemed Requisite to Perfection.

HARDMAN'S SUPERIOR AMALGAM

Surpasses all others for strength and density of texture. Use it for Crown Work, in Molars, &c.

PRICE REDUCED TO $4.00 PER OZ.

Large discounts on both of these in quantities.

MADE AND FOR SALE BY

J. HARDMAN, MUSCATINE, IOWA.

If your depot does not keep them send to the proprietor for them.

8-4-AN-¼

DIBBLE'S WHITE AMALGAM

A Gold Alloy. $5.00 per ounce.

Manufactured only by

W. H. DIBBLE, MIDDLETOWN, CT.

For sale by S. S. WHITE DENTAL M'F'G CO., or sent by mail by the manufacturer.

ALSO MANUFACTURER OF THE DIBBLE PLUGGER.

THE FOLLOWING TESTIMONIALS ARE RESPECTFULLY OFFERED.

Dibble at present is ahead on Amalgam.
NEW YORK, Jan. 9, 1883. J. W. CLOWES, 667 Fifth Avenue.

I believe it to be the best article of the kind in use.
W. H. DWINELLE, M. D., 27 West 34th St., New York.

I take pleasure in recommending it as the best now known.
GEORGE H. PERINE, 74 West 50th St., New York.

Have used it three years, and it has given me better results than any other.
O. E. HILL, M. D. S., 160 Clinton St., Brooklyn, N. Y.

I am satisfied it is the best in use. I can recommend it to the profession.
C. E. GRAVES, 393 Jay Street, Brooklyn, N. Y.

It is the best I have ever used. MILES H. DODGE, 20 E. 33d St., New York.

$5.00 per oz. or 3 oz. for $12.50. Sent by Mail.

3-5-AN-½.

E. KEARSING'S

COHESIVE AND SOFT

GOLD FOIL,

Used by many of the prominent dentists in this country and abroad.

——ALSO EXTRA FINE——

TIN FOIL AND AMALGAM.

MR. E. KEARSING, *Dear Sir:*—After having used your gold foil for five years, I can say that it gives me better satisfaction than any other that I have used. For restorations and all work where I greatly depend upon cohesive qualities it never fails.

Yours truly, A. H. SCOFIELD, D. D. S.,
113 W. 47th St., New York City.
September 8, 1884.

MR. E. KEARSING:—After using your gold foil about five years with great satisfaction, I feel that I cannot get along without it. It is especially valuable for small cavities, and for fine work in approximal cases. Respectfully, J. N. FARRAR.

MR. E. KEARSING, *Dear Sir:*—After having used your gold, both soft and cohesive, for nearly five years, I find it has given me entire satisfaction in all cases.

Yours truly, J. BOND LITTIG, D. D. S.,
113 W. 47th St., New York City
September 13, 1884.

Dear Sir:—After using your gold foil almost uninterruptedly for the last six years, I have no hesitation in stating that it stands without a rival for performing what are known as contour operations. It answers equally well for small fillings unannealed when properly manipulated. Very truly, H. C. LONGNECKER.
FLUSHING, L. I., Sept. 11, 1884.

E. KEARSING, ESQ., *Dear Sir:*—In reply to your inquiry about my opinion of the merits of your Gold Foil, I can say frankly, after having had over thirty years' acquaintance with it, that it works and wears beautifully. No gold foil ever had a better endorsement than that given your gold foil by the late Dr. Marshall H. Webb, whose elegant operations live to do honor to him and reward you. Your cohesive foil, No. 4, folded into 32 or 48, is daily giving me great satisfaction, being uniformly impacted from beginning to end of the filling with the Electric Plugger. Yours very truly, E. PARMLY BROWN.

---

101 HOYT STREET,

P. O. Box 182. BROOKLYN, N. Y.

7-4-AN-½

"THE OLD RELIABLE."

LAWRENCE'S

RES NON VERBA
LAWRENCE
TRADE MARK

AMALGAM.

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the Trade should be addressed accordingly.

Price, $3.00 per Ounce. For sale at all respectable Dental Depots.

Manufactured only by

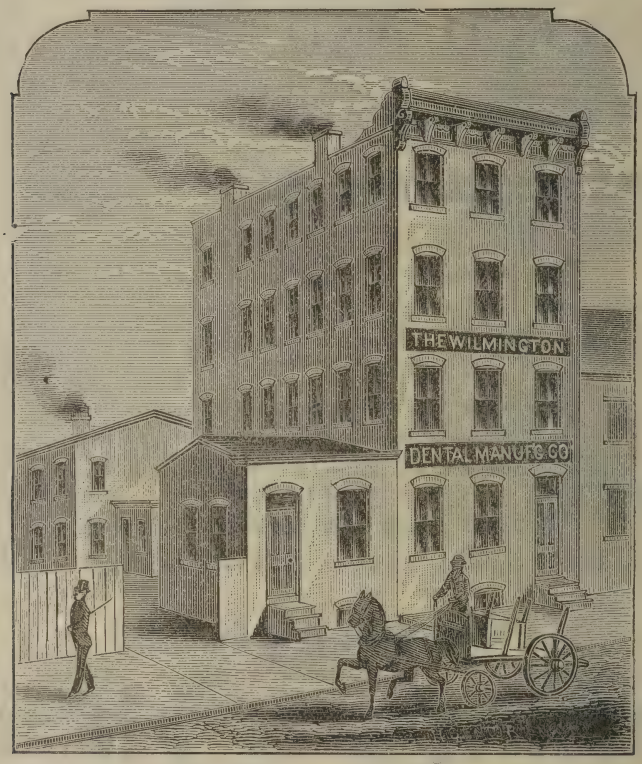
AMBROSE LAWRENCE, M. D., 476 Columbus Avenue, Boston, Mass.

10-4-AN ¼

The Wilmington Dental Manufacturing Co.

MANUFACTURERS OF

ARTIFICIAL TEETH,



Nos. 1010 and 1012 KING STREET,

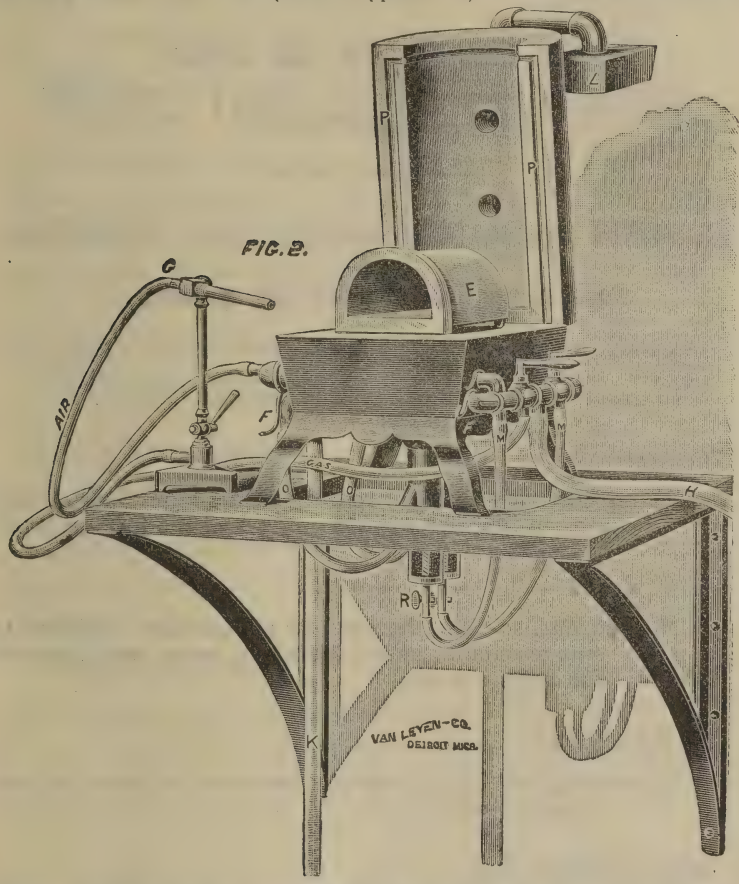
WILMINGTON, DELAWARE.

Having been justly recognized as manufacturing a very SUPERIOR TOOTH at a very moderate PRICE, they now avail themselves of this medium by which they hope to present their merits to the Dental Profession. They have now perfected their designs as to the character of their MODELS, and have fully succeeded in being able to present to the Dentist an opportunity to select a SHADE of enamel which will harmonize and correlate with that of the natural tooth.

☞ *For sale by Dental Dealers everywhere. Send for price list.*

DR. C. H. LAND'S
COMPOUND
GAS OR GASOLINE FURNACE

(Patent Applied for.)



Size No. 1, especially adapted for all kinds of muffle work, crucible work, blow-pipe work, forging and brazing. It is the most complete furnace ever devised for the chemist, assayer, jeweler, dentist and metallurgist. Continuous gum and porcelain can be baked in from 15 to 20 minutes in the most perfect manner and with unerring precision. Send for descriptive circular.

Instructions—In order to enable those who contemplate using gas furnaces and to comprehend their great superiority over coal or coke fires, my laboratory will be open free to all, and with those who desire a special course in continuous gum work, enamel metallic coatings and enamel fillings, favorable arrangements can be made. A visit to my laboratory will be of the utmost value. Here furnaces are operated by both foot and steam power, using either gas or gasoline. Thus practical working can be seen to the best advantage.

Address, C. H. LAND, 264 Woodward Ave., Detroit, Mich.

GEO. E. HODGE, President. AUG. WEBER, Secretary.

THE

New York Dental Manufacturing Company

1300 BROADWAY, COR. 34th STREET,

NEW YORK CITY.

C. ASH & SONS' MINERAL TEETH

Possess the following desirable qualities:

1. *NATURAL FORMS*—

   In great variety and of various sizes and lengths.

2. *COLOURS*—

   Ranging from very light to very dark shades, and closely resembling the various colours of the human teeth.

3. *TEXTURE*—

   Non-porous, so that they can be ground and polished to suit particular cases, therefore being well adapted for Bridge work.

4. *STRENGTH*—

   Possessing unusual strength on account of their fine and close texture.

5. *SOLDERING*—

   Bearing in an extraordinary manner the sudden transitions of temperature so that they can be soldered without cracking.

We especially invite comparison to each of these points enumerated above. There are no teeth in the world made to compare with them

THE "DIATORIC" TEETH

without pins, are superior to any cheap tooth made in this country.

The very high reputation obtained all over Europe and other parts of the world, by the Messrs. CLAUDIUS ASH & SONS, for the superior excellence of their

Mineral Teeth and Dental Rubbers,

seems to be rapidly coming to them in this country.

We have the largest stock of these goods of any depot in the United States, and are prepared to give particular attention to filling orders, and to the selection of teeth for special cases.

Hand Piece for Dental Engine, - - - - $10.00.
Right Angle Attachment, - - - - - - 6.00.

Stone Cut Burs, per Doz.

000 to 8	$3.00
9 to 11	4.20
12 to 14	4.80

Finishing, per Doz.

3 to 8..50 c. each	$6.00
9 to 11..60 "	7.20
12 to 14..75 "	9.00

Drills, per Doz.

00 to 8	$2.00
0 to 5, flexible	4.00

Keen-edge Burs, per Doz.

000 to 8	$2.25
9 to 11	3.60
12 to 14	4.20

Finishing, per Doz.

3 to 8..40 c. each	$6.00
9 to 11..60 "	7.20
12 to 14..75 "	9.00

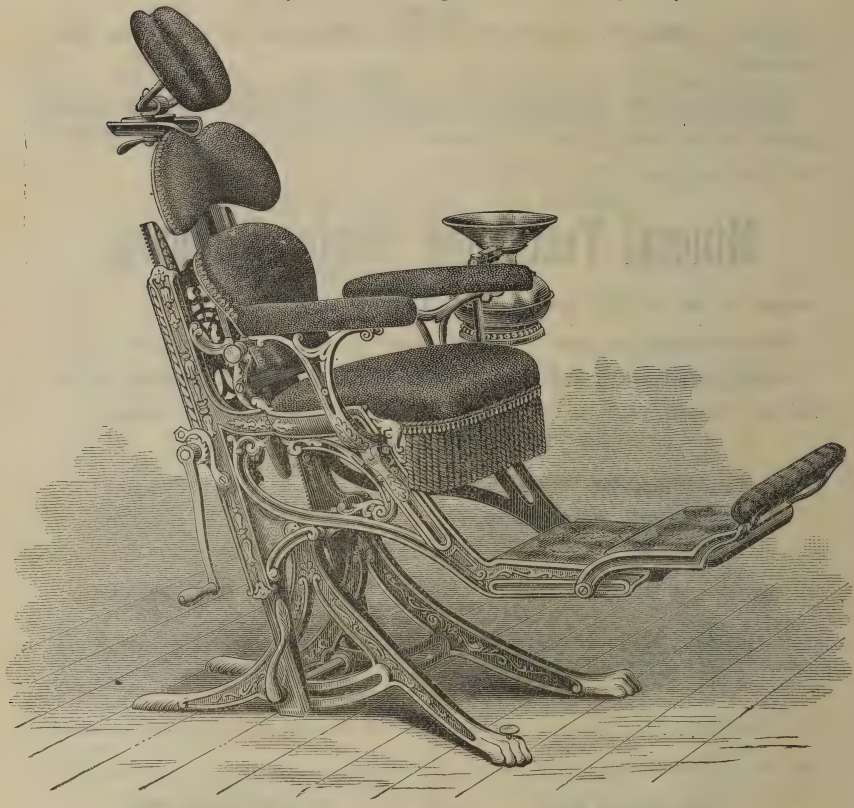
Flexible Burs, per Doz.

1 to 5...40 c. each	$4.80
Morey Drills, 50 c. each	6.00

We shall soon issue a card for a new variety cavity cutting stone cut bur.

THE MORRISON DENTAL CHAIR.

Reissue May 15, 1877. English Patent Dec. 7, 1867.



PRICES.

In Best Quality Green or Maroon Plush or Plain Morocco	$130 00
In Real Morocco, Embossed	140 00
In Finest Quality Green or Maroon Plush, puffed and trimmed with Plush	150 00
Spittoon Attachment, extra	4 00

BOXING FREE.

STUDENT'S MORRISON CHAIR.

To meet an often-expressed want of a first-class chair at a low price, the Student's Morrison was brought out. It is, in all respects, equal to the regular Morrison chair, except that it is upholstered in a corded material, instead of plush. It presents a very attractive appearance, and will wear nearly as well as plush.

PRICE—In Corded Upholstery..... $105 00

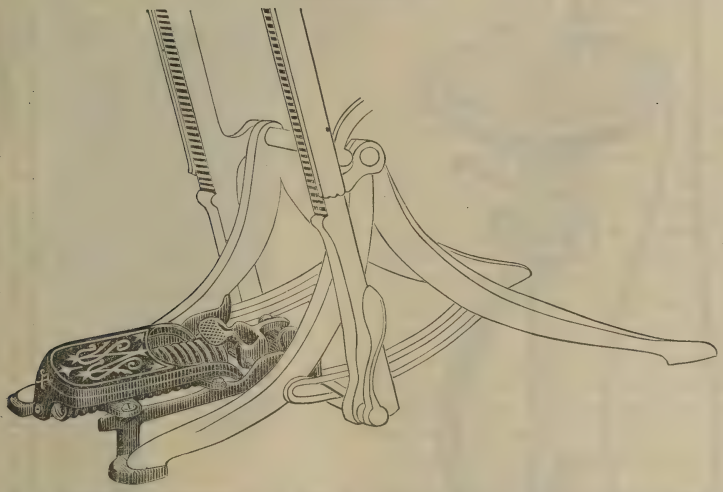
We supply either style of the Morrison Chair, with our without Casters. When ordered with Casters, the price is $10.00 extra.

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

BALANCE-SPRING ATTACHMENT.

(Patent applied for.)



This Attachment supplies the only lack of the Morrison Chair as sold for many years and used by thousands of dentists,—an easy tilting movement. It consists of a strong spiral Spring operating a latch which engages with a rod attached to the connecting-bar at the bottom of the movable uprights. The attachment is made by means of a clamp, without interfering with the mechanism which locks the chair. In tilting the chair and returning it to the upright position, the Spring counterbalances the weight of the patient, thereby lightening the labor of the operator. The desirability of such a labor-saver will be specially appreciated by those who have had occasion to handle a heavy patient in this chair. Its advantages are most apparent when the chair is at the usual height for operating. The frame which supports the spring is made to form a convenient foot-rest for the operator. The latch has a toe-piece by means of which it may be readily disengaged, thus dispensing with the use of the Spring when desirable.

The Balance-spring Attachment can be applied to any Morrison Chair in a few moments. Made of iron, japanned and gilded.

Price..... ...$12 00

CHAIR OIL.

We are frequently asked what kind of oil should be used in the Wilkerson and Pedal-Lever Dental Chairs. We reply to all such inquiries that the oil we send with them was specially prepared for us after a long course of experiments in our effort to obtain a mixture of oils that would stand the variations of temperature without gumming. Several complaints have been received from dentists that their oil-wells leaked, but on examination we have found that in renewing the oil they have put in too much,—in fact, filled them above the packing of the oil-well, and in time it soaked through the packing and trickled down the outside of the well. We now label every can that is sent out, and each contains the proper quantity for the Chair, as marked, viz.:

3½	pints	for the	Wilkerson Low-Base Chair	$1 00
3	"	"	Medium	1 00
4	"	"	High	1 25
4	"	"	7 in. High-Low Chair	1 25
4	"	"	9 " " "	1 25
5	"	"	11 " " "	1 50
5	"	"	13 " " "	1 50
4	"	"	S. S. White Pedal-Lever Chair	1 25

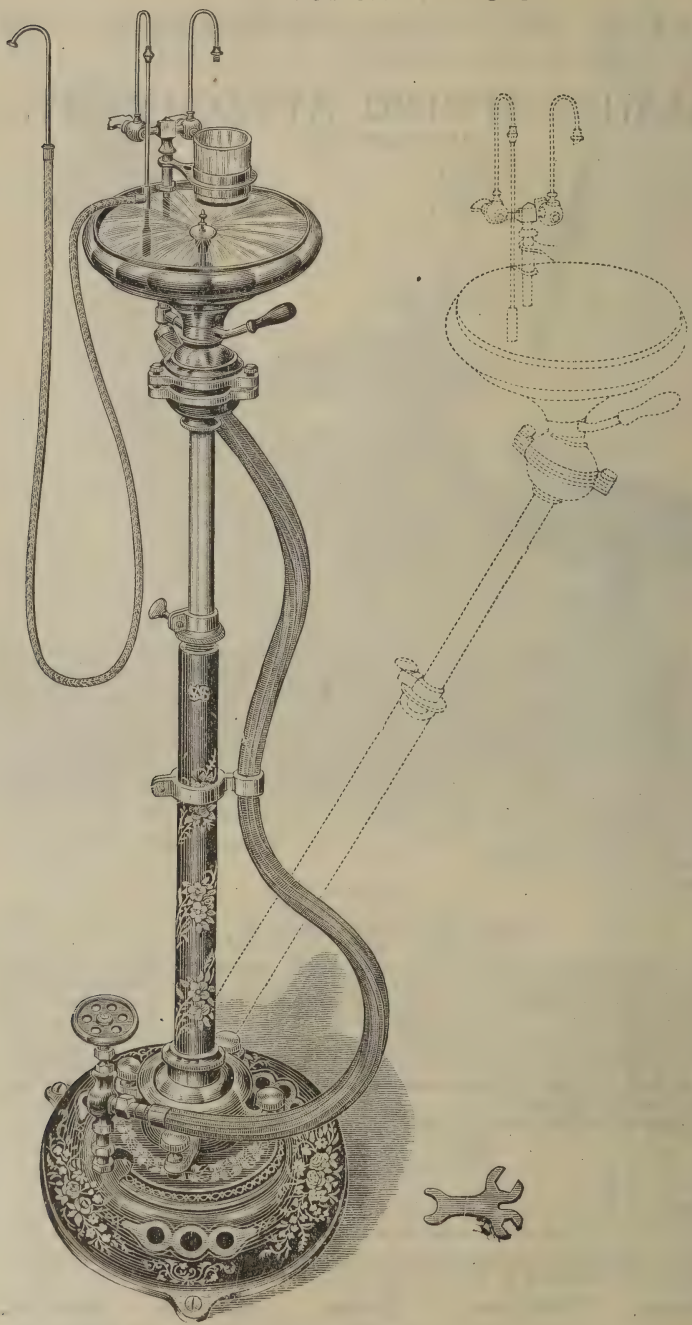
THE S. S. WHITE DENTAL MANUFACTURING CO,

Philadelphia, New York, Boston, Chicago. Brooklyn.

THE ADJUSTABLE FOUNTAIN SPITTOON.

Patented May 21, 1881.

REDUCTION IN PRICES.



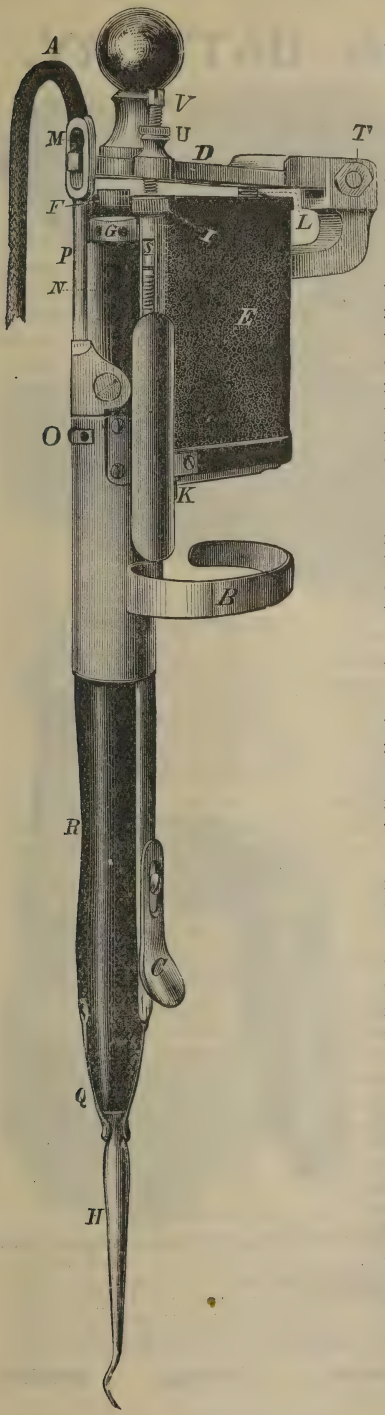
The top of the bowl of the Adjustable Fountain Spittoon, when in its lowest position, is 29 inches from the floor; at its greatest height, 44 inches, giving a vertical range of 15 inches. When lowered, the center of the bowl may be placed anywhere within a circle 13 inches in diameter; at its greatest height this circle is 23 inches in diameter. Within these limits the bowl may be adjusted at any height or inclination, by means of the universal ball-and-socket joints. The mouth of the bowl is 9 inches in diameter; the depth 3 inches. The whole is well made and handsomely finished, forming an attractive piece of office furniture.

Complete, with two Faucets and Saliva-Ejector with Silk-covered Tubing	$70 00
Complete, with two Faucets, without Saliva-Ejector	64 00
Complete, with one Faucet, without Saliva-Ejector	58 00
Boxing	2 00

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

The Bonwill Electro-Magnetic Mallet,



With Modifications made by Marshall H. Webb.

Patented Jan. 26, 1875; Nov. 16, 1875; Dec. 14, 1875; Feb. 15, 1876; Oct. 15, 1878.

This Mallet combines the most valuable inventions of Drs. Bonwill and Webb. It needs no words of encomium to commend it to those who are familiar with its merits. It is indorsed by many of the most skillful operators in the world. When properly understood, it will be found to approach more nearly the ideal condensing instrument than any other ever offered in the profession.

Some of its principal advantages are :

First—The blow is delivered upon the packing-instrument just when its force is greatest, because the attraction of the magnets increases constantly as the mallet approaches them until the circuit is broken.

Second—The force of the blow can at all times be controlled by the operator.

Third—Properly used, it condenses the gold thoroughly and evenly throughout the entire filling.

Fourth—Gold may be impacted against thin, frail walls with ease and without fracturing the enamel.

Fifth—It saves the operator time and the fatigue attendant upon the use of a hand, automatic, or foot-power mallet.

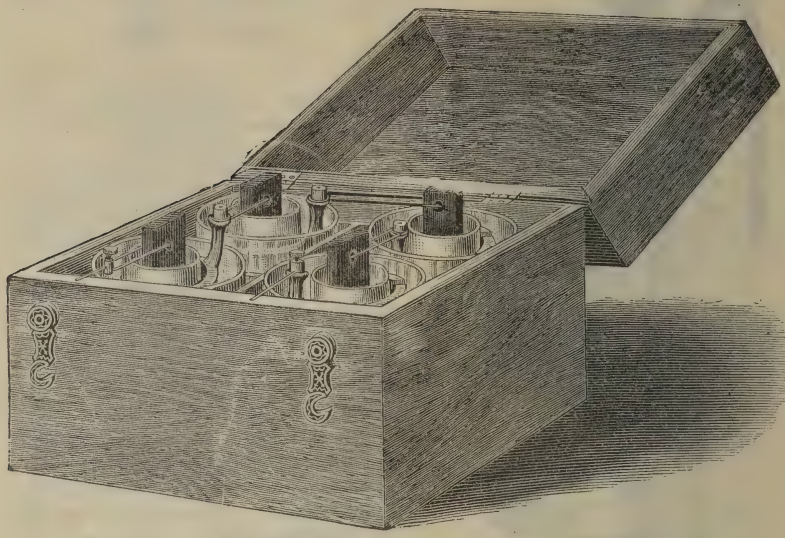
Sixth—When its operation is understood and the battery is kept in order as per instructions which accompany each Mallet sold, the instrument does not require any more attention than is involved in the care of a watch.

PRICE.

Mallet, with seven feet Silk Cord, and Connecting Posts	$35.00
Bunsen Battery, with four Cells Complete, in Box	12.00
Mallet and Bunsen Battery, Complete	47.00
Improved Plugger Battery, four Cells, Complete	16.00
Mallet and Improved Plugger Battery, Complete	51.00

THE S. S. WHITE DENTAL MANUFACTURING CO.,
Philadelphia, New York, Boston, Chicago, Brooklyn.

THE BUNSEN BATTERY.



IMPROVED CONNECTIONS

—FOR—

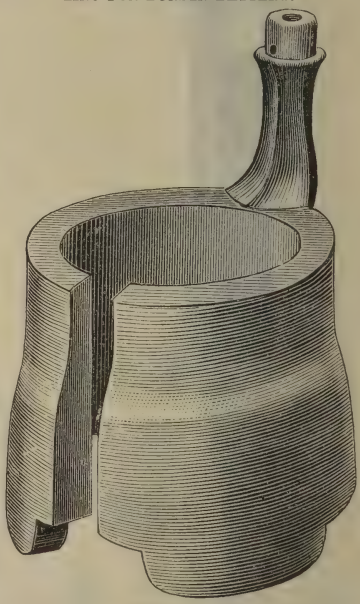
BUNSEN BATTERY.

Suggested by Dr. J. ROLLO KNAPP.

No. 1.

No. 2.

ZINC FOR BUNSEN BATTERY.



By the use of these connections, the old forms of carbon clamps, platinum-faced wires, posts for zincs, and cord connections are dispensed with.

Their simplicity can be readily understood at a glance. The looped end of wire No. 1 is sprung over the round portion of the zinc stem and the flat platinum-faced buttons grasp the carbon. There is but one zinc binding-post used, viz : In the first zinc to which the wire or cord is attached. To the last carbon is connected wire No. 2, which is fastened to the binding-post to which the other wire or cord is attached. They can be put on and taken off in an instant, and if kept clean will make a firm and positive contact. In adopting these connections we were obliged to alter the form of the zinc stems, but to enable those who have the old forms of connections to continue their use we have drilled and tapped holes in the stems to admit the screws of the old-style brass posts. Hereafter this style of zinc will be supplied on all orders.

Price, Zincs	each,	$0 75
" Knapp's Battery Connections, complete, per set of 4		2 00
" " " " separately, No. 1	each,	50
" " " " " " 2	"	65

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

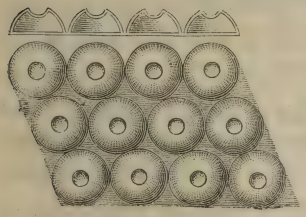
Important to Dentists Using the Electric Mallet.

Complaints in regard to the working of the Electric Mallet have, in many instances, been found to depend upon the fact that the instruments used with it were not of our manufacture, and not properly fitted to the Mallet. To insure satisfactory results with the Electric Mallet, the most scrupulously exact adaptation of the instrument is required. The most trifling deviation in either of several measurements will be fatal. Each instrument must be tried in master gauges to prove its absolute correspondence. When it has been so proved our workmen are not allowed even to polish the swell end of the plugger for fear of destroying its efficiency. Instruments made in imitation of our manufacture, however closely resembling them, cannot in the nature of things be expected to give satisfaction.

SURFACE COHESION FORMS FOR ARTIFICIAL DENTURES.

INVENTION OF DR. JOSEPH SPYER.

PATENTED JANUARY 6, 1885; DECEMBER 8, 1885.



A thin metallic form, the surface of which is covered with minute papilliform prominences—shown magnified four diameters—which by displacement of mucus at the points of gum contact effect surface cohesion as if the denture were glued to the gums, yet cause no irritation and leave no marked indentations. Adapted for either upper or lower plates. By the aid of this device strong cohesion can be had with a narrow plate, and thus the sense of taste be left unimpaired. Lower plates so made are very firm. Put up in packages containing one dozen forms, which can be cut for either upper or lower plates. Full directions accompany each package.

PRICE.....per box containing one dozen Forms, $1.00
RUBBER CEMENT.....per bottle, .35

DENTOPLASTIQUE.

This Cement is of the zinc phosphate order, and superior to most of its class. Absolute permanence under all conditions of use and abuse cannot be justly claimed for any plastic material, but if this cement be properly mixed and used precisely as directed it may be expected to last in most mouths for years without noticeable waste or wear.

We present it with the assurance that its merits will entitle it to confidence when manipulated in exact accordance with the directions.

Made in four colors :

PEARL, CANARY,
IVORY, COFFEE.

PRICE.....per box, $1.00

THE S. S. WHITE DENTAL MANUFACTURING CO.,

PHILADELPHIA, NEW YORK, BOSTON. CHICAGO, BROOKLYN.

To the Dental Profession.

GENTLEMEN:

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

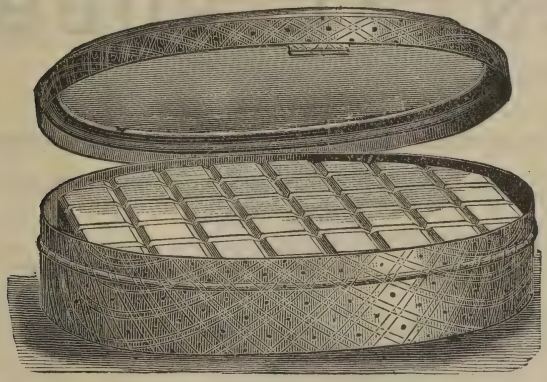
I. W. LYON, D.D.S.,

88 MAIDEN LANE, NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

DR. I. W. LYON'S TOOTH TABLETS



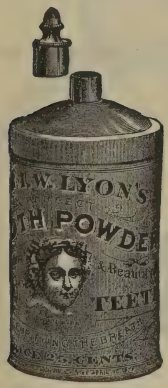
For Purity, Efficiency, Neatness and Convenience these Tablets have no equal as a Dentifrice. They are put up in Seamless Metallic Boxes, which are impervious to air and moisture, and may be carried on a journey without danger of breaking.

HIGHLY INDORSED BY EMINENT DENTISTS.

PRICE **50** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

DR. I. W. LYON'S

PERFECT TOOTH POWDER



ENAMELLED METAL BOX REDUCED IN SIZE.

This Powder is carefully prepared by an experienced dentist, familiarized by practice with the wants of the teeth. It is absolutely pure and free from acid, grit, or other hurtful substances, and is highly recommended by the most eminent men in the profession. It gives a *delightfully refreshing sensation* in the mouth, strengthening and healing the gums, and imparting a fragrance to the breath which is very agreeable.

Put up in an enamelled metal box with sprinkler top, free from the mishaps incident to glass or wood, and very convenient for use, especially in traveling.

ENAMELLED PAPER CARTON REDUCED IN SIZE.

PRICE **25** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

I. W. LYON, D.D.S., PROPRIETOR,

88 MAIDEN LANE, NEW YORK.

3-5-AN-2

AKRON
DENTAL RUBBER

The materials of which this Rubber is composed
are prepared by new processes,
which insure

ABSOLUTE PURITY,

Resulting in a Product of Wonderful

DENSITY, FIRMNESS AND STRENGTH.

It is especially designed to meet the requirements of those who seek to produce the most perfect and artistic work.

It is exceedingly tough and light, and takes a beautiful polish.

Plates may be made very thin without danger of splitting or crumbling away about the edges.

It can be used with the best results for making partial lower dentures, an advantage which no other rubber possesses.

It has the unqualified approbation and endorsement of the profession everywhere, and never fails to give satisfaction.

It will cost you nothing to try it.

Send for samples and prices.

AKRON RUBBER WORKS,

AKRON, OHIO.

Sold by all Dental Depots.

11-5-AN-1

PARSON'S EUREKA SILVER ALLOY.

I am manufacturing and offering for sale a superior Amalgam or Silver Alloy, which has the following properties: It is a quick setting alloy, has great edge strength, therefore a superior alloy for mounting artificial crowns on natural roots. Fillings may be finished and polished in fifteen or twenty minutes after inserting, and retain their polish and silvery whiteness remarkably.

It does not spheroid or bulge like many alloys of inferior grade.

If you wish to use one of the nicest working alloys in the market, send for ½ oz., **$1.50**; 1 oz., **$3.00**; or 4 oz. for **$10.00.**

Let the profession give my alloy a fair and impartial trial, and I feel confident I shall receive a liberal amount of patronage. Respectfully,

DR. W. H. PARSONS,

Sole Proprietor and Manufacturer. WAMEGO, KANSAS, U. S. A.

TESTIMONIALS.

HOUSTON, TEXAS, April 26, 1885.

DR. PARSONS—*Dear Sir:* The Alloy came safely to hand. I am very well pleased with it. Very respectfully, DR. S. E. JONES.

ROCHESTER, N. Y., April 13, 1885.

H. W. PARSONS—*My Dear Friend:* The boxes of Amalgam were duly received, and I consider it very nice indeed. Respectfully Yours, DR. S. G. WOOD.

RICH HILL, MO., Feb. 9, 1886.

DR. H. W. PARSONS—*Dear Dr.:* Yours of the 5th inst. at hand, and in reply would say your Eureka Alloy is the best I ever used. Respectfully, C. E. JONES, D.D.S.

COLUMBIA, MO., March 16, 1886.

DR. H. W. PARSONS—*Dear Sir:* I have used your Eureka Silver Alloy for one year, and am much pleased with it. I find its properties all that you represent them to be.

Respectfully, DR. N. HOCKENSMITH.

7-6-00-½

W. C. JACOBS, MANAGER.

1-7-AN-½

CHERRY MALT PHOSPHITES.

This preparation is believed to be the only Malt Extract continuously acceptable to the stomach. The attention of those who have ceased prescribing other extracts of malt because of excessive sweetness is specially called to this.

CHERRY MALT PHOSPHITES is a combination of Wild Cherry, the condensed extract of the important Cereals and the Elixir of the Hypo-phosphites. Its flavor is delicious, and it is medicinally invaluable in all cases of General and Nervous Debility, Dyspepsia, Imperfect Nutrition, Impure Blood, Wasting Diseases of Children and Adults. It is extensively prescribed in European countries, and has received the cordial endorsement of the leading practitioners of this country

Price $1.00 per Bottle.

To Physicians not familiar with its merits, who will pay express charges, we will send a full-sized bottle *free.*

Please mention this journal.

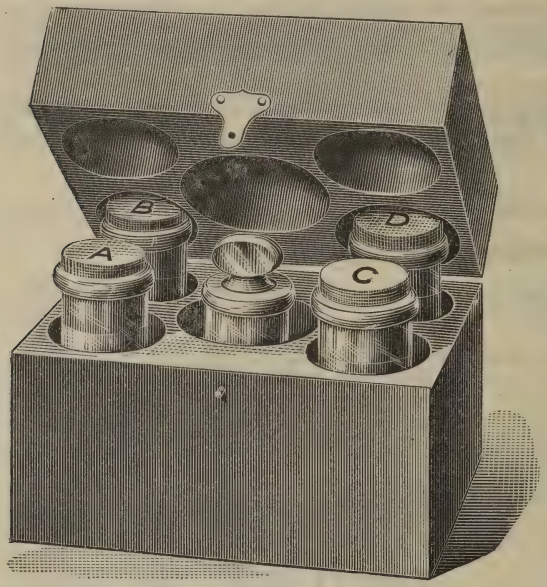
LIEBIG'S LIQUID FOOD,

A Concentrated Extract of Beef possessing both tonic and nutrient properties.

MANUFACTURED ONLY BY THE

LIEBIG PHARMACAL CO., N. Y.

SMITH'S ADAMANTINE PHOSPHATE CEMENT.



INSOLUBLE.

TWO COLORS.

Price, - - *$1.00.*

Also in Cedar Cases, as shown in cut, containing four colors of Powder and one bottle of Liquid, glass-stoppered.

A, White; B, Brown; C, Yellow; D, Bluish.

PRICE, - $2.00

SMITH'S

Oxychloride of Zinc.

PRICES—Plain Form, one-ounce, - - - - - - - each $1.00
Cedar Cases, as shown in cut, containing four colors of Powder and one bottle of Liquid, glass-stoppered, - - - - " $2.00
A, White; B, Brown; C, Yellow; D, Bluish.

10-6-00-½ **DR. J. H. SMITH, New Haven, Conn.**

TO INVENTORS.

If you desire to patent your invention, enclose your address, *with stamp for reply*, and the undersigned will take pleasure in giving you the benefit of his *large* experience with United States and foreign patent lawyers.

B. M. WILKERSON, M. D., D. D. S.,

(Inventor of the Wilkerson Dental Chair, etc.)

No. 1215 Madison Ave., Baltimore, Md.

12-6-00-½

PH. SCHMIDT,

MANUFACTURER OF AND DEALER IN

DENTAL INSTRUMENTS

OF THE MOST IMPROVED KINDS,

1368 BROADWAY,

Near 37th Street, NEW YORK.

WHOLESALE AND RETAIL.

My Goods are Used and Recommended by the Most Prominent Dentists.

A PRACTICAL EXPERIENCE OF THIRTY YEARS.

Personal attention given to all my work.

9-5-AN-⅓

ALFRED J. NICKOLDS,

Refiner and Manufacturer of

Dentists' Chemically Pure 1000 Fine

GOLD FOILS, GOLD PELLETS,

TIN FOIL, ETC.,

238 McDonough Street,

BROOKLYN, N. Y.

Special attention is invited to *Nickolds' Improved Soft Gold Foil* and *prepared Pellets;* pronounced the best article of Gold Foil extant.

7-4-AN-¼

LINE YOUR RUBBER PLATES

— WITH —

Robinson's Improved

VULCANIZABLE GOLD.

It is now more than two years since Vulcanizable Gold has been introduced to the profession, and the great improvement now made gives it great superiority over all other manufactures now before the public for the following reasons:

First—It is heavier than any other manufacture in the market.

Second—It is absolutely pure gold, 1000 fine.

Third—It is more easily applied, on account of its flexibility and cohesive qualities.

Fourth—It is so thoroughly incorporated with the rubber in the plate that it is part of the plate itself, and will not peel or wear off.

Fifth—It comes out of the vulcanizer thoroughly bright and polished.

Ask your dealer for the

IMPROVED VULCANIZABLE GOLD

AND TAKE NO OTHER.

S. S. WHITE DENTAL M'F'G CO.,

SOLE AGENTS.

1-5-AN-1.

THE DIAGRAM
APPOINTMENT BOOK
And DIARY.

SOMETHING NEW.
SOMETHING DESIRABLE.

The "Diagram" Appointment Book and Pocket Diary is a new book suggested by practical dentists, and meets the wants of the profession. The "Diagram" Appointment Book is 6¾ x 4¼ inches. In the front it has calendars for 1886, 1887, 1888 and 1889, and a table to show the number of days from any day in one month to the same day in any other month. The new feature of the book combines with an appointment book a DIAGRAM for registering the work to be done, or to make memorandum of the work when finished, by having a diagram for each day, and the diagram in such shape as to be efficient and yet not make the book bulky and unhandy. There are one week's appointments on two opposite pages, and, therefore, six diagrams on same space. In the back of book are the pages for memoranda.

TUESDAY.
2. Mo. 10

8	Miss Frailey	1	P.W. Peck
9		2	Edgar Thomas
10	Bertie Dook	3	
11	Mrs Harmon	4	Paul Ross
12		5	

The above is a facsimile of one day's work in the "Diagram Appointment Book;" the appointments are made as usual, and the fillings are accurately noted on the diagram. No ledger or other memorandum is necessary for immediate use; at leisure the work may be copied into the large ledger, if desired. After each persons name a note may be made of the amount charged or paid. It will be seen that it is easy to keep a record on this diagram of the work of this day, or of any day, by letting the hour of appointment stand for that person in the diagram; thus the figures 8 in the diagram stand for Miss Frailey, the 8 o'clock appointment.

There can be no disappointment in the paper, ruling, printing or binding, as they are all first-class in every particular.

PRICE 50 CENTS. TRADE SUPPLIED.

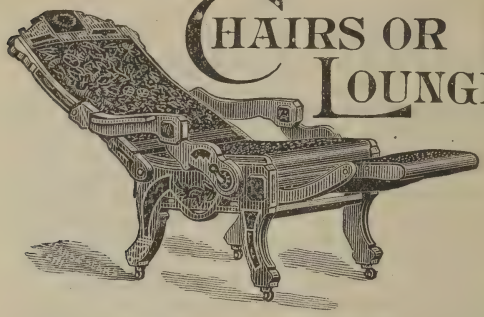
WELCH, DENTAL CO., Publishers.

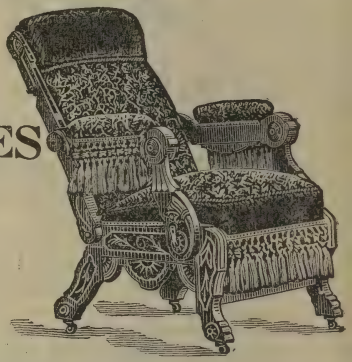
IF YOU WANT A COMFORTABLE CHAIR OR LOUNGE

GET ONE OF THE CELEBRATED

HARTLEY RECLINING

CHAIRS OR LOUNGES





BOTH have ALL the Different RECLINING POSITIONS,

AND CAN BE

FASTENED RIGIDLY IN ANY,

A Feature found in No Others.

SEND FOR

CATALOGUE.

For COMFORT, ELEGANCE, DURABILITY AND PRICE,

THEY HAVE NO EQUAL.

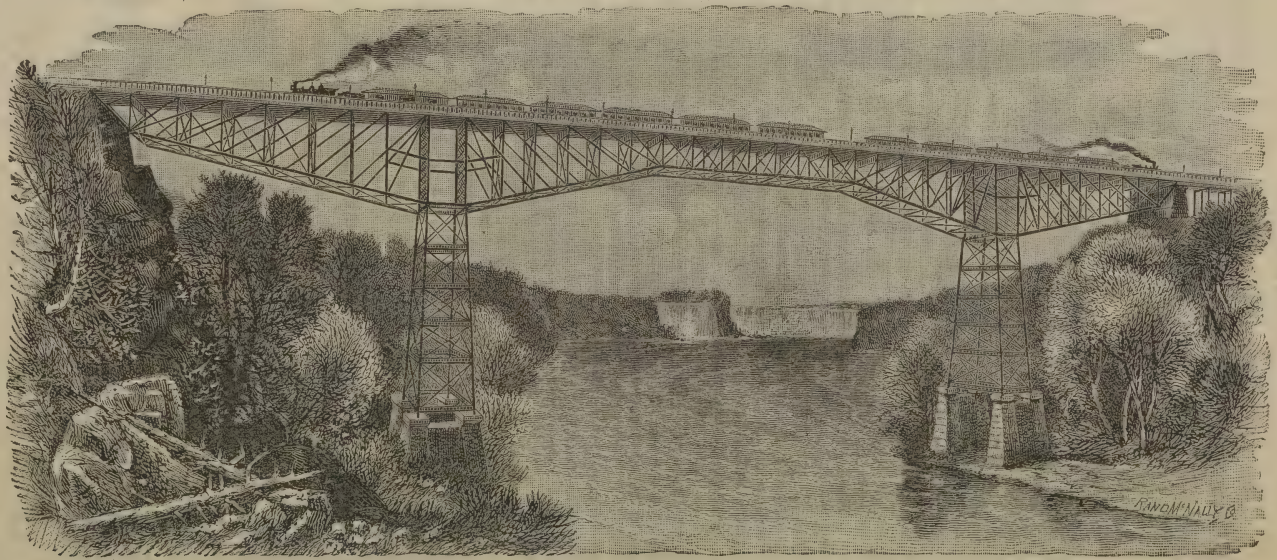
The Hartley Reclining Chair Co.

209 WABASH AVENUE,

CHICAGO, ILLS.

I-6-AN-I

ALL MICHIGAN CENTRAL Express Trains with through cars to DETROIT, TOLEDO CHICAGO, ST. LOUIS, Etc., cross the great Cantilever Bridge, below and in front of the Falls, as shown in this cut, thence along the west bank of the Niagara River to FALLS VIEW, where passengers are afforded the grandest view of the great cataract. DINING CARS ATTACHED TO ALL THROUGH TRAINS.



The New Michigan Central Double Track Bridge over Niagara River, Completed Dec. 1st, 1883.

Total length of bridge proper,	895 feet.	Length of fixed span,	125 feet.	Height of abutments,	50 feet.	Height of clear span above the river,	245 feet
Length of Cantilevers,	375 and 395 "	Length of clear span across the river,	500 "	Height of Steel Towers,	130 "	Total weight resting on steel columns,	1,600 tons

GENERAL OFFICE, BUFFALO, 57 Exchange Street.

DALY'S CHEMICALLY PURE

GOLD LINING

RUBBER SORE MOUTH CURED AND PREVENTED.

Each Book Contains 8 Square Inches of Gold Lining.

NEW AND OLD RUBBER PLATES LINED.

This lining presents advantages that no other can. It is formed entirely of chemically pure gold. It is united mechanically with the rubber of the plate without the intervention of any other metal or of rubber or any other cements.

Being so formed and so united there can be no tarnish or chemical change of state from the action of the secretions of the mouth, or from the effects of galvanic action between different metals in contact. Its union with the rubber is so perfect that it cannot be separated from it, and its removal involves the destruction both of the lining and the portion of rubber with which it is in contact.

Every surface of the plate can be lined with it if desired. Old plates, no matter how long worn, can be lined with it, preserving perfectly the fit and articulation. Being formed entirely of pure gold it will not only prevent rubber sore mouth, but will cure that disease, when applied to rubber plates that have produced it.

That rubber sore mouth prevails under rubber plates to an alarming and much greater extent than is generally appreciated, is proven by the testimony, based on actual observation, of such eminent men in our profession as Drs. Taft, Atkinson, Walker, Kulp, Dorrance, Cutler, Allen, Eames, Cushing, Morrison, Judd, Flagg, Younger, Sturgiss, H. A. Smith, Crouse, and others, as well as of members of the medical profession.

This testimony is found on record in the printed proceedings for the last twenty years of such bodies as The American Dental Association, The American Dental Convention, The Southern Dental Association, and many District and State Societies.

The cost of lining plates will be seen to be small by taking the price of a book of it and counting how many plates of different sizes can be covered by eight square inches of lining—the amount contained in each book. Full instruction with each book.

Price per book, - - - - - - - $3.50.

DALY GOLD LINING DENTAL CO,,

AND ALL DENTAL DEPOTS. **WASHINGTON, D. C.**

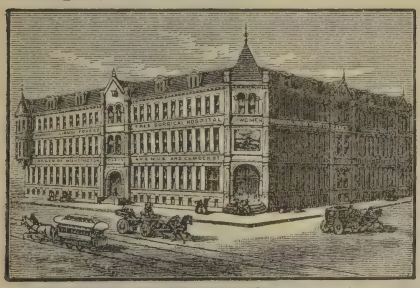
10-6-an-1.

THE VALUE OF MURDOCK'S LIQUID FOOD IS RECOGNIZED IN ALL COUNTRIES, AND IS INDORSED BY ALL NATIONAL MEDICAL SOCIETIES THAT HAVE INVESTIGATED ITS VALUE.

There never was an essay read before any Medical Society on Raw Food Extracts, except on Murdock's Liquid Food, and counterfeit manufacturers of Extracts have published many of our essays to show the value of their counterfeits.

Send for Essay and DISCUSSION before the British Medical Association at Brighton England, 1886, (Essay) by the Vice-President of The American Medical Association and others on the value of Murdock's Liquid Food over all Foods and Extracts known, it being the *only* Raw Condensed Food, free from insoluble matter.

Also essay read before the American Medical Association at Richmond, Virginia, and Washington, D. C.



Its value was recognized by the profession from results obtained in the Free Hospitals that have been established and supported by our Mr. A. L. Murdock during the last four years. They now equal

140 FREE BEDS.

and contain 38,000 feet of floor.

Our Liquid Food can be retained by the weakest stomach. Four tablespoonfuls daily will make eight per cent. new blood weekly. When used for infants, never change their food, but add five or more drops of Liquid Food at each feeding, and their lost or needed vitality will be restored in less than thirty days.

Send for the Report of the Chairman of the Section of Obstetrics of the American Institute of Homœopathy, read at Saratoga at the annual meeting of 1886.

Circulars were sent by him to all the Physicians in the United States, asking what their experience was with Murdock's Liquid Food in its use for infants under, as well as over, one year old.

Then what results, with all the different Milk preparations, Grain Foods, Peptonoid Foods and Beef Extracts, compared with Murdock's Liquid Food.

The Returns show that it is the Standard Food and Extract, as the percentage of lives restored was the largest when used.

We extract from the report. After calling attention to the fact that one-quarter of the homœopathic profession are accustomed frequently to prescribe this food for children less than a year old, as well as over, he remarks—

"It is singularly adapted to scrofulous, syphilitic, and tubercular constitutions, its life-restoring power manifesting itself in each with a relative clearness and power corresponding to the order of enumeration. For fair-haired children who are inclined to grow fleshy it is more symptomatically recommended, while Duncan's *acid* babies find it particularly useful. Accordingly it is chiefly employed for marasmus and anæmic conditions resulting either from non-assimilation of food or from simple summer complaints. Should a child vomit all milk food and suffer synchronously with diarrhœa or dysentery, the demand for this food is emphatic and unmistakable; also in general irritability of the stomach, particularly if there be sour-smelling diarrhœa, the food passing through undigested. For the prematurely born it stands pre-eminent. For those 'weak and debilitated from any cause, Murdock's Food is probably the best in the world.' Should any indication of cerebral hyperæmia appear, the quantity of food must be diminished; so, too, if after its protracted use, vomiting and diarrhœa ensue, the child has been overfed. *Should the taste or odor of any given bottle chance to be disagreeable, add water until they disappear, and let the purchaser congratulate himself upon getting more nutriment than he paid for.* When given in combination with milk in cases of indigestion, the quantity of milk should be diminished until all curds disappear from the stool, the quantity of Food, of course, being proportionately increased."

The Surgical Staff at Murdock's Free Hospital for Women are in daily attendance, except Saturdays, to examine patients and assign beds. **EVERY BED FREE.**

Our Free Surgical Hospital for Women, located on Huntington avenue, above West Chester park, contains fifty (50) beds, in charge of a staff of five surgeons, members of the Massachusetts Medical Society.

Our Free Surgical Hospital for Women, located on Gainsborough street, corner of Huntington avenue, contains 50 beds, in charge of a staff of five surgeons, members of the Massachusetts Homœopathic Medical Society.

Our Free Home for Homeless Boys contains 40 beds, and is located at 11 to 21 Causeway street. Many of these boys suffer from Scrofula, Eczema, and other skin diseases, which yield quickly by the use of our Liquid Food.

From the fact that no two beeves or sheep are alike is the reason of our different brands being different in flavor. All brands are made by the same formula. The letter represents the day of make, and the figure the tank.

If richer, it is stronger in smell and flavor, and will bear a greater reduction. I cannot be reduced so low but it will be superior to all other preparations in treating chronic cases.

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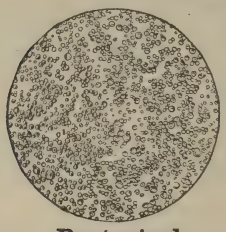

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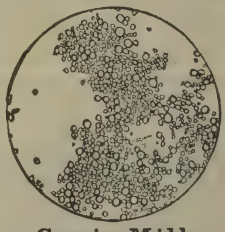

Cow's Milk.
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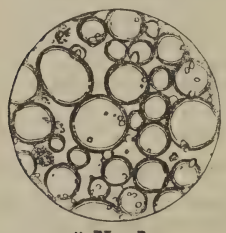

*** No. 1.**
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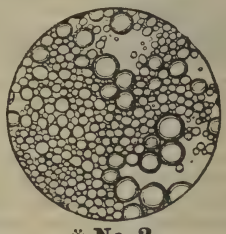

*** No. 2.**
200 Diameters.

All preparations of Cod Liver Oil, but the plain, in the market are Emulsions in some form, regardless of the names given them. *Their value and easy digestibility over the plain Oil must consist in the division of the oil globules* Any physician who has a microscope of any power can compare COD LIVER OIL AND MILK with the various preparations of Cod Liver Oil, and he will find that the oil globules of COD LIVER OIL AND MILK are from 10 to 100 times finer than any preparation of Cod Liver Oil in the market, and 25 per cent. finer than nature's Emulsion, milk. This should be the guide in the use of Cod Liver Oil with every practitioner.

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Feb. 26, 1885. Fellow in the Johns Hopkins University, Sec'y Baltimore Micros'l Society.

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(Signed) JOHN ATTFIELD.

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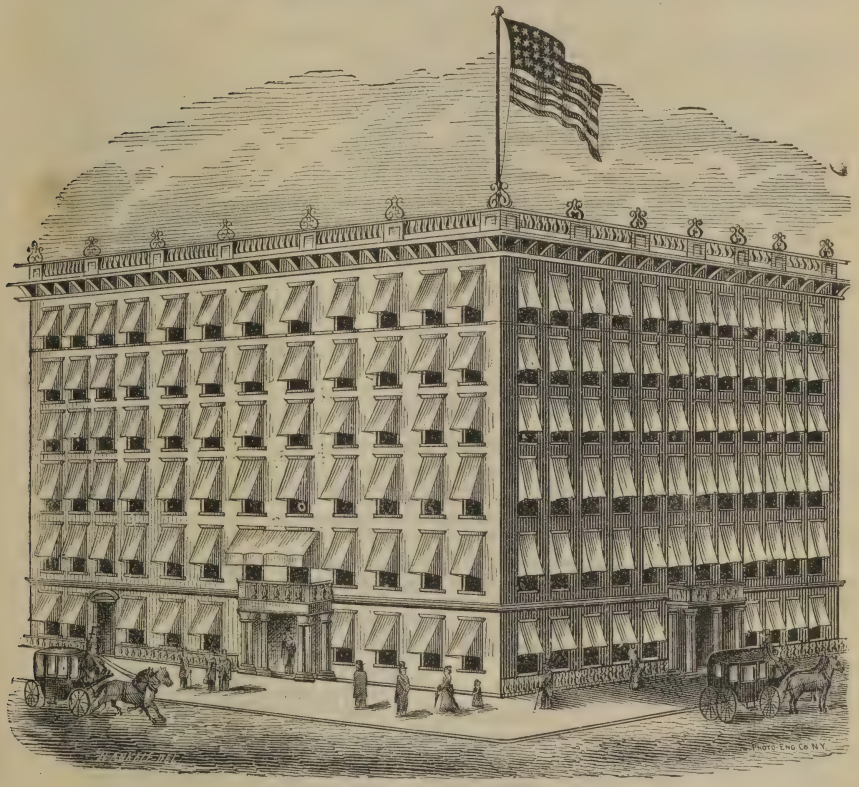

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Instruments and appliances for clinical departments will cost from $25 to $40.

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IN THE

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Garrett Newkirk, M. D.	"	Dental Irregularities and Hygiene.
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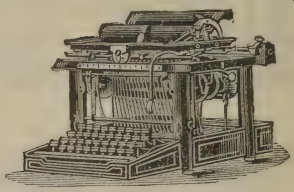

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M

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ACID PHOSPHATE WITH QUININE.

℞

Horsford's Acid Phosphate	f ℥ ss
Quininæ Sulph.	gr. xvj
Syrupi Simplicis	f ℥ ij
Aquæ	f ℥ vss

M

Sig: A tablespoonful in a wine glass of water.

ACID PHOSPHATE WITH EMULSION OF COD LIVER OIL.

℞

Emulsion Olei Morrhuæ 50%	f ℥ vij
Horsford's Acid Phosphate	f ℥ j

M

Sig: A tablespoonful.

*ACID PHOSPHATE WITH WINE OF PEPSIN.

℞

Vini Pepsinæ	f ℥ vj
Horsford's Acid Phosphate	f ℥ ij

M

Sig: A dessertspoonful in water.

ACID PHOSPHATE WITH ELIXIR OF IRON AND QUININE.

℞

Elix. Ferri et Quininæ	
Horsford's Acid Phosphate	aaf ℥ iij

M

Sig: A teaspoonful in water.

*ACID PHOSPHATE WITH TINCTURE NUX VOMICA AND COMPOUND TINCTURE OF GENTIAN.

℞

Horsford's Acid Phosphate	f ℥ vj
Tinct. Nucis Vom.	f ℥ j
Tinct. Gentianæ Comp.	f ℥ ij
Syrupi Simplicis	f ℥ iij

M

Sig: A tablespoonful in water.

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Table of Contents—April.

ORIGINAL COMMUNICATIONS:

The Surgical and Therapeutic Treatment of Caries and Necrosis of the Alveolar Process in Man. A. W. Harlan 169
Discriminate Use of Gold. S. B. Palmer 175
"Wanted—A First-Class Mechanical Dentist. No Student or Operator Need Apply." Frank B. Darby 181
Teeth with Exposed Pulps. B. Merrill Hopkinson 184
Oral Hygiene and Care of the Teeth. C. E. H. Phillips 187
Post-Graduate Study. C. N. Johnson 189
Overcoming Leverage in Superior Dentures. L. C. Bryan 192

REPORTS OF SOCIETY MEETINGS:

Central Dental Association of Northern New Jersey 194

EDITORIAL:

Dentifrices 206
The Tooth-Crown Patents 208
Prospective 210
Remittances 211
American Dental Association 211
Bibliographical 212

CURRENT NEWS AND OPINION 216

Index to Advertisements.

Horsford's Acid Phosphate....Cover Page 2
Charles H. Phillips Chem. Co.. " 2
Dr. Robert S. Ivy..... " 2
Underwood Spring Water..... " 3
R. S. Williams..... " 4
Listerine..... Adv. Page 1
A Sensitive Point ..... " 2
Munn's Patents..... " 2
Baker, Jones & Co ..... " 2
Seabury & Johnson..... " 3
Claudius Ash & Sons..... " 4 & 5
Acme Gold Foil..... " 6
American Dental Manuf. Co .. " 7
Caulk's Filling Materials..... " 8 & 9
Cogswell's Disk Carrier & Guard " 10
Edward Rowan & Co..... " 11
C. A. Timme & Co..... " 12 & 13
Hardman's Amalgams..... " 14
Dibble's White Amalgam..... " 14
E. Kearsing ..... " 15
Lawrence's Amalgam..... " 15
Wilmington Dental Mf'g Co.... " 16

Gasoline Furnace..... Adv. Page 17
New York Dental Manuf'g Co.. " 18 & 19
S. S. White Dental Manuf'g Co. " 20–25
I. W. Lyon..... " 26 & 27
Akron Dental Rubber..... " 28
Parson's Eureka Alloy..... " 29
Cherry Malt Phosphites..... " 29
J. H. Smith's Cements..... " 30
To Inventors..... " 30
Parke, Davis & Co..... " 31
A. J Nickolds..... " 31
Vulcanizable Gold..... " 32
Welch Dental Co..... " 33
Laboratory Brush..... " 34
Michigan Central R'y..... " 35
Daly Gold Lining Dental Co.... " 36
Murdock's Liquid Food Co.... " 37
New York College of Dentistry " 38
Philadelphia Dental College.... " 39
Chicago College of Dent. Surg'y " 40 & 41
Florence Manufacturing Co.. " 42
Dental Review..... " 42

The Independent Practitioner—Vol. VIII.

AN INDEPENDENT DENTAL JOURNAL

PUBLISHED BY DENTISTS FOR DENTISTS.

Prospectus.

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While not neglecting practical details, it will pay especial attention to those oral diseases that have usually been under the care of the general practitioner, but which more properly belong to the specialty of dentistry.

Its pages will be open to any member of the profession who has anything of nterest to communicate, and it invites a free expression of views on all subjects, medical or dental.

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It will pay especial attention to reports of the meetings of dental societies, and its aim will be to publish an epitome of all important discussions of professional matters.

It will contain original abstracts and translations of all that is of moment in the foreign journals.

Its profits, if any, will be devoted to its improvement by adding needed illustrations, paying for valuable original communications, and enlarging its size whenever this becomes advisable.

To the accomplishment of the work thus outlined (necessarily relying upon the hearty approval of an appreciative profession), each of the publishers of the INDEPENDENT PRACTITIONER has pledged his best efforts.

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THE

Independent Practitioner.

VOL. VIII. APRIL, 1887. NO. 4.

Original Communications.

NOTE.—No paper published or to be published in another journal will be accepted for this department. All papers must be in the hands of the Editor before the first day of the month preceding that in which they are expected to appear. Extra copies will be furnished to each contributor of an accepted original article, and reprints, in pamphlet form, may be had at the cost of the paper, press-work and binding, if ordered when the manuscript is forwarded. The Editor and Publishers are not responsible for the opinions expressed by contributors. The journal is issued promptly, on the first day of each month.

THE SURGICAL AND THERAPEUTIC TREATMENT OF CARIES AND NECROSIS OF THE ALVEOLAR PROCESS IN MAN.

BY A. W. HARLAN, M. D., D. D. S., CHICAGO, ILL.

READ BEFORE THE CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY AT MONTCLAIR, JAN 20, 1887.

Caries and necrosis of the alveolar process is observed at all ages of man, more frequently, however, after the age of puberty. If disease attacks the alveolar process disastrously at an early age, the subjects are usually found to be inmates of foundling asylums, workhouses, orphan asylums, or other similar institutions, or in the densely crowded dwelling places of the poor, where infection and contagion float in the air, in the regions where bad drainage, imperfect ventilation, and non-attention to necessary hygienic surroundings is prevalent. Under such conditions, and in the places mentioned, Dental Surgeons rarely come in contact with the sequelæ of exanthematous and other acute diseases, and hence are usually unfamiliar with the appearance of mouth lesions of the soft or

bony structures in early childhood in eleemosynary institutions or the abiding places of poverty and filth. It is questionable, therefore, whether the statement is true that diseases of the alveolar process are more prevalent after the fourteenth year on account of the inferences to be drawn from the above. At any rate the dentist comes in contact with more cases of alveolar disease after the patient has passed the age of puberty than before it is attained.

In a certain sense the proper treatment of diseased alveolar processes implies a thorough understanding of the causes of disease, yet in many instances this is untrue, for who has not observed cases, after recovery, where little if any systematic treatment had been employed, and no deformity existed in consequence thereof? This only goes to show the wonderful reparative process of nature. What are the usual causes of disease in the oral cavity which affect so injuriously the bony structure surrounding teeth? One principal cause is disease resulting from the death of the pulp; others from syphilis, the exanthemata, phosphorus, arsenic, excessive wedging, and other traumatisms, bungling regulating apparatus, salivary concretions, ostitis, periostitis, osteomyelitis, ill-fitting partial dentures, sepsis, and numerous ills which every one can catalogue to make his summary complete. The death of the pulp, its subsequent decomposition and abortive attempts to remove it, and the later unsuccessful efforts to fill the root, may be reckoned as the principal causes of caries of bone when ignorance or neglect of proper treatment results in acute inflammations with their sequences. An alveolar abscess is never found at the apex of a root, or leading from it, unless there be a coincident excavation of bone around it, or a perforation of the process in its near proximity. Occasional rare cases of perforation of the antral cavity, burrowing of pus into other regions, as on the neck, the chin, the nasal cavity—between the palate bones, or even through the lower maxillary—have been reported with concomitant caries of bone, and they occur in time in the practice of almost every one. Still the greater number of cases of caries observed are found in the neighborhood of the affected teeth. In chronic abscesses from pulpless teeth a gradual but slow solution, or breaking down of the margins of the process making the outline of the original destruction is observed. In time this may be so marked that pressure of the finger will bring the gum in contact with the root. The edges of the alveolar process in such cases are not

necrosed; they are simply carious. Ultimately such teeth, without treatment, become useless, and either drop out or are extracted on account of the destruction of the pericementum and their consequent feeble attachments to the alveoli. Many teeth with excellent fillings in them are left by operators to discharge pus into the mouth daily, either through ignorance of the requisite treatment, carelessness, or timidity about operating surgically. There are many more cases of caries of bone around the roots of teeth than there are of necrosis. You may ask, Why is this so? or you may dispute it. In searching for the reasons to substantiate this statement, we may say that the ignorance of the average dentist is to be deplored, especially when speaking of the methods of removal of the pulp, and the filling of roots of teeth. No authoritative manual of operating in either of these procedures has ever been published. It is impossible to enumerate the various instruments used, and the methods of practice pursued in removing this delicate organ. You are well aware of the fact that no universal root-filling material is used. When it is remembered that roots of teeth are filled with every known plastic, cotton, gold, lead, wood, silk, and combinations of antiseptics too numerous to prove of value, is it not wonderful that we do not find even a larger number of chronic abscesses than are seen? In my short professional life I have visited many dental offices, and from what I have observed I am no longer surprised that portions of the pulp are left to putresce in the roots of teeth, or that roots are often imperfectly filled. When you have not the necessary instruments it is impossible to perfectly remove the pulp. This is also true when applied to the filling of roots. In this connection I desire to state emphatically that the practice of soaking wood, cotton and silk, or incorporating antiseptics with paraffine, shellac, gutta percha or other plastics, in the hope that if the filling does not reach the apex of a root, the antiseptic will forever remain as a guard against putrefaction, is delusive, unscientific, and demonstrates the lack of a respectable knowledge of the lasting property of an antiseptic. Such juggling as this needs, as it deserves, the severest condemnation. With such sentiments and convictions it is very easy to detail a line of treatment for caries of the alveolar process in man. Caries of bone, from whatever cause arising, is to be treated surgically, by dividing the gum in any approved manner, and boring into the apicial space with clean instruments, and under an-

tiseptic precautions. The cavity being cleansed and packed with antiseptic dressings, which are to be replaced with balsamic or non-irritating coverings as new tissue is developed to fill the space once whole. The prophylaxis is proper removal of the pulp, and a well-defined system of root filling with a material non-metallic, innocuous, and well adapted for the purpose—gutta percha. In dismissing this portion of the subject, the writer is aware that many teeth develop abscesses around their roots when unfilled, and indeed caries of the process is observable from inflammations of the gingivæ and other causes around teeth containing living pulps, as in phagedenic pericementitis, or pyorrhœa alveolaris; but it is not the intention to dwell on this latter phase of disease, only in so far as to say that the diseased bone should be removed with the same precautions, but the subsequent treatment differs, as it may involve sponge-grafting, the use of astringents, local stimulants, germicides or disinfectants. Tents of cotton, felt or gauze packed between the gums and the teeth are rarely requisite pending the reformation of tissue from such trivial operations, although the importance of correct treatment of such conditions is even greater than in the aforementioned. Necrosis of the alveolar process, although less frequently met with than caries, is the *bete noir* of the every-day practitioner. Phosphor-necrosis is very rare at the present time, and the details of treatment are to be found in the works of Heath, Garretson, and works on general surgery, and consequently I will not burden you with a repetition. Necrosis of the alveolar process at times has followed very trivial causes. By necrosis is meant death of the bone *en masse.* I have seen a well-built woman, weighing one hundred and sixty pounds, reduced to a pitiable state of nervousness, losing more than thirty pounds in weight in ten days, from the forcing of septic matter through the root of a bicuspid tooth. The outer plate of the alveolar process from the first molar to the median line became necrosed from the retention of pus in contact with the bone and in due time it was removed without loss of a single tooth. It may be stated as a general proposition that danger to health, and even to life, is always invited by irresolution or timidity in operating promptly in the beginning of peridental inflammation, which has its origin in or near the apicial space. It is undoubtedly true that there are many cases of necrosis of the alveolar process not due to causes arising from the death of the pulp. However, many more

are seen whose origin can be traced directly to this cause. Nearly every case of this kind occurring in the mouths of children after the sixth or seventh year is due to defective teeth. Mercury and syphilis were formerly held to be the cause of nearly every disease which the surgeon or physician did not understand, but now things are changed. It matters not whether necrosis be due to traumatism, sepsis, microbes, an imperfectly-filled root, an impacted tooth, or faulty adjustment of a splint. We must discover the cause, not so much for the aid it will afford for treatment, but to prevent future pain, discomfort or deformity for others. Preventive medicine is what we are aiming at. To become dental officers of health requires sound judgment, much study, and accurate observation. Can we expect to escape the penalties due to ill-advised operations on pulpless or other teeth in the mouths of the growing young, enfeebled, the aged, or those whose time is of so much value that they cannot afford to submit to proper treatment? The operator who only sees present gain at the finish is too dishonest to practice a beneficent calling. Scientific acquirements, great learning, skill and fearlessness are of little value unless joined to honesty of purpose. Ignorance of methods, or of the causes of disease is no excuse for neglect of proper treatment; but honesty in practice, added to a desire for knowledge, will conquer the most desperate case, because such devotees will counsel with their confrères and bring about a successful issue. You may ask what this has to do with the treatment of necrosed bone, but your own intelligence will answer it because my plea is for a thorough study of the causes of disease, a correct diagnosis, and prognosis, the certain method of operating, a scientific treatment based on these, and above all prophylaxis. All these preliminaries have been gone over to show the necessity for preventing the death of the pulp, but if it dies or is destroyed intentionally, the greatest care and skill must be exercised to prevent abscess and possible necrosis. If, unfortunately, some vital step has been overlooked or neglected, and we are brought to face the inevitable sequel of such neglect, the necessity for promptness is only too apparent. Good drainage is the first consideration, after which sustention of the vital forces; these having been looked after, cleanliness and consecutive attention to details follows. It is often unwise to remove portions of necrosed bone, even though irritating to the soft tissues, until the teeth are likely to be retained in place by new forma-

tions. It is better practice, as a rule, to allow the sequestrum to be taken away in fragments rather than invite a loss of teeth, or even more living useful bone.

Dr. Atkinson, in a paper read before the section on diseases of the teeth, International Medical Congress, London, 1881, says: "The prevailing methods in surgery of treating caries and necrosis by expectant treatment and drainage should no longer be resorted to. The portions already dead, or greatly debilitated, should be thoroughly removed well up to the healthy territory—securing a pocket to receive the pabulum, out of which to attain reproductions by what has been called 'first intention.'" This teaching is founded on correct surgical principles, although in the treatment of some cases I might be inclined to doubt the propriety of at once removing *all* dead bone around teeth in beginning the treatment of a case, as has previously been stated. The attempt should be made in all cases to save useful teeth by wiring them or by the adjustment of a metallic perforated skeleton splint, which will securely hold them in place until the new formations are sufficiently dense to maintain them in position unaided. This is a matter of great importance.

SPECIAL THERAPEUTICS.

In the treatment of caries or necrosis of the bone little need be added to the foregoing. Methods of practice are varied to suit the case, and the remedies used or proposed from time to time are sufficiently numerous to meet the wants of the most exacting. The principles of local treatment may be summarized as follows: Premising that the root has been filled if indicated, the surgical wound may be cleansed with peroxide of hydrogen, a ten per cent. aqueous solution of resorcin, a three per cent. solution of aseptol, or equal parts of a one in one thousand solution of corrosive sublimate and H_2O_2. Any of the above named are efficient, and of nearly equal value for this purpose. The wound should then be packed with cotton sprinkled with deodorized iodoform (for this, use crystals of thymol, finely powdered coffee or oil of cinnamon three drops to ℥ ss.), or the cotton may first be moistened with pure tereben. As a substitute, use iodol dissolved in hot oil (ethereal or a fixed oil), or dip the cotton in tereben, and powder the surface with iodol. These dressings need not be changed daily. If extraneous matters have been kept from the wound it must not

be irrigated with escharotic or irritating lotions. If at any time it is deemed unwise to remove the whole sequestrum in necrosis, the parts must be kept clean by the daily use of any of the above-named cleansing and stimulating agents, the dressings only being indicated after operations on carious or necrosed bone, until complete restoration of the parts has resulted. It will be noted that in some respects the therapeutic treatment laid down is not in accord with the teaching of the books, but this is the age of progress, and progress is due largely to gatherings of this kind, where all that is illogical, absurd, or misleading in theory or practice is quickly discerned, and the stamp of approval is only affixed when truth is disclosed, unshadowed by superstition or the false logic of preconceived ideas.

DISCRIMINATE USE OF GOLD.

BY S. B. PALMER, M. D. S., SYRACUSE, N. Y.

READ BEFORE A UNION MEETING OF THE 5TH, 6TH, 7TH AND 8TH DISTRICT DENTAL SOCIETIES OF NEW YORK, HELD IN ROCHESTER, OCTOBER 26 AND 27, 1886.

Having consented to present a paper on this occasion, I could think of nothing more needed in the profession than a few simple suggestions relative to the discriminate adaptation of gold to the various conditions of dentine, in filling teeth. Time and experience may furnish such knowledge; but when the young operator seeks definite instruction upon this point, either in text books or dental literature, he will find few practical suggestions and rarely any scientific teachings. Formerly, gold was considered the only suitable filling material, and arguments to the contrary are of recent origin. Professional advancement, at present, calls for operations upon a class of teeth which formerly would have been doomed to the forcep. This does not conflict with the fact that gold is still the best material to use for the great majority of fillings. There are cases and conditions, however, where it should not be employed. When, where, and how it is advisable, are questions for our con-

sideration. One short paper cannot give in detail all the combinations and circumstances which are presented in practice. Fortunately, they differ in degree rather than in principle, and once the laws are known, good judgment will guide operations. Therefore, we draw illustrations from extremes, and give to you the outcome of all our incoming knowledge from any and every source.

Filling teeth involves two principles; both must be understood to insure success. First, the operator needs to be a master mechanic, so far as the preparation of cavities and the manipulation of gold is concerned. Second, he should understand the relations of gold to the varied conditions of tooth-structure, in order to anticipate probable results. Each operation may be regarded a cause, which is related by law to positive effects.

The day of writing this I examined the teeth of a patient who had a dozen or more fillings, all gold, and in good order. My attention was called to one in a lateral incisor which I had inserted thirty years ago. The patient's teeth have been under my care ever since, a few fillings only having been replaced. From first to last there was no demand for plastic fillings, and no excuse for failures. With this case before us, let us understand the principles of success. All understand that the teeth referred to were of excellent quality; but we want to know something of the difference between dense teeth and soft teeth, also what chemical action may be expected from the introduction of gold plugs in soft teeth. Good normal teeth usually contain about one-third of organic or animal matter, and two-thirds of mineral or inorganic matter. It so happens that about this proportion of inorganic, non-conducting material, reduces vitality to a degree below severe inflammatory action, at least below the danger of devitalization from such action; consequently, instead of destruction of the surface in contact with the filling, the excitement caused by thermal changes stimulates the bone-producing agents, and increased calcification is the result, by the same process witnessed in the grinding down of the oral teeth by attrition. We often find the walls hardened beneath gold fillings, but we look in vain for this process in poorly calcified teeth, unless some less-conducting material lines the cavity.

Thus far we have considered the better class of teeth. This class, when filled, come under a positive law for preservation. Now, please consider the other extreme—say the teeth of a child from ten

to fourteen years of age, with numerous lateral cavities in the incisors. I need not say that such teeth are soft and far below the average. The presence of decay indicates the true condition. They resemble cartilage nearly as much as bone. Does any one pretend that gold is a suitable material for filling this class of teeth? The fact that occasionally we see it so used leads us in charity to believe so. We have in this class an utter change of conditions, which, if treated like those already noted, would give opposite results, and which in time would be recorded as failures. And why? In the fully matured tooth the organic matter is given as twenty-eight parts in one hundred, against seventy-two parts of lime, etc. Thus the pulp and spaces occupied by the vital fluids are so contracted and protected that unless cavities reach very near the pulp, thermal changes cause only temporary inconvenience.

With the poorly calcified organ, the large pulp and increased vitality renders the preparation of a cavity painful, and the packing of gold exceedingly difficult. This is not all. Such operations are followed by thermal disturbances. Vitality will endure a given amount of irritation, excitement or inflammation, and yet set to work to ward off the enemy and repair damages. Beyond a certain strain the work is abandoned. Devitalization first occurs in the dentine, merely upon the surface in contact with the filling. It is first manifest to the eye by the blue or gray shade reflected through the enamel. When disintegration sets in, the decomposed dentine becomes a conductor and positive element, the gold being negative.

With this understanding of the two extreme conditions, it will readily be understood why former discussions upon the "Electro-chemical Theory" seemed so conflicting and unsatisfactory. The opposition presented the one condition most favorable to overthrow of the theory, which was substantially this: "Tooth-bone, being a non-conductor, is not an electrolite, therefore is not decomposed by galvanic currents." This being true, it was received by the general reader as the *whole* truth. On the other extreme, abnormal tooth-bone, that in which the organic matter predominates, *is* a conductor, and like the portions of animal matter deposited from food, as well as the oral fluids, is an electrolite, and is decomposed, the gold in contact being the negative element.

One great hindrance to dental progress is the lack of discrimina-

tion. Chemical results are in accordance with fixed laws. If we desire certain results, we must certainly understand the laws and conditions by which such results are possible.

My present practice is based upon the following conclusions: That gold may be used with safety in all teeth of normal structure and density; also in devitalized teeth of like structure, even though the color might indicate a lower grade. For teeth answering the above conditions, all things considered, gold is superior to all other filling materials.

Gold should not be packed upon highly sensitive dentine, as thermal changes occur which may be avoided by filling with gutta-percha, even for a few days or weeks.

Gold should not be malleted into teeth while sensitive from recent wedging. This condition presents a three-fold danger; the dentine pulp and periosteum are unduly inflamed. A retaining wedge of gutta-percha, worn from six to eight days, removes all trouble.

Gold should not be inserted or packed upon dentine so poorly calcified that the excavator fails to give the sound and sense of cutting bone, because the surface in contact with the plug will lose vitality, decompose, and eventually turn dark.

Gold should not be malleted upon dentine below normal structure. Bruised dentine will decompose, and not harden, by calcification under a filling.

The utility of gold may be greatly extended by the lining of cavities with a varnish, and by combination with various plastic materials, through methods generally known and practiced. Its combination with tin is of sufficient importance to receive special consideration.

There are two distinct methods involved in the combination. Each will give positive results when specific conditions are observed, any change of conditions leading to seeming contradictions.

The substance of the first condition or method has been published and commented upon. It applies to filling large cavities, generally in molars, as a substitute for amalgam, the object being to form an alloy of gold and tin by chemical action upon the surface of the plug. Such fillings resemble amalgam in color and hardness, without the disadvantage of either shrinkage or discoloration of the dentine. To obtain an alloy it is essential that the two metals be

evenly distributed throughout the plug. There may be an excess of gold at any point without injury, but the tin foil must not exceed one or two thicknesses of No. 3 foil, for the reason that the molecular action desired is limited or confined near the surface of the two metals in contact. An excess of tin greater than can be fused with the gold is chemically dissolved, leaving a corresponding furrow or pit in the plug.

It should be borne in mind that this union or combination depends upon moisture. That is, a filling well packed in a good cavity remains the same except upon the surface. If it be upon the grinding portion, where the filling is self-cleansing, there seems to be little difference from a first-class tin filling, but on approximate, buccal or lingual surfaces, especially where little care is bestowed, the surface of the plug becomes hard and indestructible, which renders this preparation of great value for submarine operations. I prepare the material for this filling by placing a sheet of No. 3 tin upon a No. 4 sheet of gold. This will usually fill a cavity. If thought to be sufficient, cut through the leaves and place the gold of one-half upon the tin of the other, thus giving four thicknesses, from which blocks or ribbons can be cut, the latter being rolled into cylinders. This preparation makes an excellent foundation for large gold fillings at the cervical borders of approximate cavities, where the matrix can be used, as there is no danger that the tin will be dissolved by chemical action. Cutting the foil unites the edges and secures the position of the layers while packing.

The second method is applicable for any filling in the posterior teeth, and much better than amalgam against frail, transparent walls of bicuspids. It possesses all the advantages of a gold filling in appearance through the enamel, as well as the benefits of tin in packing and closely adapting the gold to the dentine and enamel. Many gold fillings fail because the contact is not absolute when the filling is completed. Some patients are prejudiced against amalgam, who would like to compromise, if possible, between the expense of amalgam and gold. This can be accomplished by the use of tin and gold. The greatest benefit to the operator consists in the saving of time.

Unlike the conditions already mentioned, this method applies to teeth of normal structure, where there is no occasion for the antiseptic properties which are afforded by tin and amalgam, conse-

quently the gold is intended to cover the tin, and of course the cavity would be lined with gold. The preparation of material is as follows: Cut number four gold into strips from three-fourths to one inch wide; also prepare number three tin foil in the same manner. Roll the tin into a rope and untwist it, and this will leave a pliable roll of tin. Anneal the gold, taking care not to melt it. Place the gold upon a napkin and the roll of tin upon it, bring the edges of the gold up over the tin and lap them, and the tin will be completely covered. This may be used as cohesive gold. Pellets may be made by cutting the gold into squares of about one inch, and making a loose pellet of tin; anneal the gold and enclose the tin in it. With either rope or pellet, fill as much or little of the cavity as desired. Cohesive gold may be added to finish, and when properly done the appearance is that of a first-class cohesive gold filling, and much better than the latter, as the gold is more perfectly pressed against the walls. One thing should not be overlooked when the tin has been used. If cohesive gold is to be added, let the first piece be of one or two thicknesses of annealed gold, packed with an instrument of four well-defined points, by which the gold will receive a firm mechanical attachment to the tin foundation. If this be not done the gold covering is liable to be drawn from the tin, leaving it bare and non-cohesive.

It is well to remove the gold from the pieces left after filling, because fresh annealing is necessary, and also because confusion might arise from allowing such foil to get mixed with that in common use. It is a pleasure to lay foundations of this combination for large fillings where there is danger of the intrusion of moisture, or when it is difficult to anchor the pellets in place. By judicious use of gold and tin, gold may be greatly helped to preserve teeth.

The foregoing suggestions have been taken from daily practice. Whether they are worth serious attention is left for your judgment. Bear in mind that the result of every operation is determined by chemical laws. Change of circumstances gives different results. Neither mechanical skill nor good intentions can atone for ignorance of natural laws. Therefore, I say to the young men, strive to adopt a scientific and systematic method of practice. Note conditions and record results, for this will aid in accurate discrimination. Correct diagnosis is prerequisite to a judicious selection and adaptation of filling materials to the varied conditions of teeth.

"WANTED—A FIRST CLASS MECHANICAL DENTIST. NO STUDENT OR OPERATOR NEED APPLY."

BY FRANK B. DARBY D. D. S.

Read before a Union Meeting of the 5th, 6th, 7th and 8th District Dental Society, held in Rochester, N. Y. Oct. 26 and 27, 1886.

The above notice appeared in one of our journals not long since, and was responded to by twenty-three applicants, each claiming to be what the advertisement called for.

Six out of the twenty-three letters were well written and business-like communications; two addressed the advertiser as Mr., and signed themselves Doctor; five were so poorly written and spelled that they were consigned to the waste basket without answers. Still they earnestly solicited the "job," knowing they could "fill the bill." Two others were frank enough to acknowledge they knew all about laboratory work, "all kinds of metal work excepted." The remainder were of a school-boy composition kind, which suggested commendable labor and perseverance.

The time served by the several applicants ranged from three months to thirty years. One who had served a studentship of a few months, claimed to have had extraordinary facilities and wonderful perception, and had acquired the "whole thing" in that short time, but upon investigation had only mastered (in his own mind) red rubber. So one by one they dropped out of line as they were confronted with metal work, until but three remained.

This experience caused the writer to stop and inquire: What are we going to do?

The time has arrived when there is a growing demand for good laboratory men. Every dentist in full practice knows the importance of a first class mechanical assistant and knows also the difficulty in obtaining one. Taking a student for a term of two or three years means nothing, for as soon as he has acquired sufficient skill to render his service of value he is off to college, and soon into practice for himself.

The demand for skilled workmen has received a new impetus since the development in crown and bridge work, and as its possibilities are undoubtedly beyond our anticipations, we know not to what extent this demand may be carried, and as there is no limit to the inventive skill of our profession the busy operator must have

some one at hand to work out and perfect his brain labor. The question of simply skilled mechanical labor in dentistry has been overlooked; in fact, the doors of the profession have been practically closed to those who might choose to adopt that branch as a life work. Encouragement has been given only to those who possess sufficient time, ability and means to perfect themselves for general practice, and those who have earned a diploma will rarely be found serving in the capacity of assistant.

It seems to me there is a place in dentistry for the mechanic; perhaps not in the broadest sense of the term, and surely not for the "rough and ready" man who knows nothing but work; but for the young man with a common school education, who by force of circumstances or choice must learn a trade, and whose tastes are for light skilled labor, dental mechanics offers an inviting field. The steady, muscular individual, would undoubtedly make a better blacksmith or carpenter, while the dental laboratory would only be a congenial place for one more delicately organized.

If the demand is such that it is necessary to admit the apprentice into the sacred precincts of the laboratory, we can offer quite as great inducements as other occupations. The ordinary mechanic passes through an apprenticeship of three or four years, usually the former, receiving the first year $1.50 per week, second year $3.00, and the third year $5.00 per week. After serving his time the salary is raised according to the degree of skill acquired, rarely ever getting above $18.00 per week. All this we can offer, and more. We can promise light labor, short hours, genteel occupation, and if the dental office is what it should be, refined influences. We can place the young man in a better position socially; we can give him more hours for study if he wishes to enlarge his fund of general knowledge; he can have more time for recreation; in fact we can give him an honorable and respectable occupation in which he can command quite as much salary as in any trade, under like conditions.

Of course many a mechanic grows out of his journeymanship, out of his occupation in fact, by perseverance and development. In the same manner we would occasionally lose a valuable laboratory man, but the majority doubtless would be content. The idea of bringing the dental laboratory down to a competition with the trades may be looked upon by some as unprofessional, and the thought may not be practical, but the writer sees no way to meet the emergency un-

less the laboratories are thrown open, and young men given a chance. To do this practically there must be a thorough understanding that nothing but mechanical dentistry will be taught; no more study need be required than in any ordinary trade.

Dentists generally look upon students unfavorably, and are disposed to give the colleges the benefit of all applicants. Many a dentist has cause to repent in sackcloth and ashes the conscientious instructions given, when in later years he sees a man stepping into his shoes and reaping the benefit of an acquaintance made with his patients during studentship. Fortunately, the time has passed when a student can step out of the laboratory and hang up the sign of a dentist. The mountain-like diploma stands between him and success, and the young man who enters the profession now does so with the intention of taking a place in its ranks, and ere long there will be only temporary assistants who are preparing for college, or who labor between college courses.

Such an idea as this promulgated a few years ago (before the passing of the laws regulating practice), would have been disastrous; it would have opened the doors of respectability to every would-be mountebank, and placed the apprentice on an equal footing with the student. The time is not far distant when all colleges will be obliged to increase their facilities for instructions in the mechanical department, and it would not be a foolish prediction to declare that the time will come when they will teach this as a separate branch, and prepare men for skilled laboratory work alone.

In looking over a practice of twenty years, I am forced to believe that dentistry is just passing the border lines of a second development, which in time will astonish the world. The demands upon us are daily increasing, and the time will come when every man in full practice will find it impossible to accomplish his daily task without the helping hand of a skilled mechanic. It requires but a glance into the future to see red rubber, and other cheap dentures diminishing, and in the onward march of intelligence, metal work will again take its proper place and require of us a full surrender.

Every old root which in years passed was consigned to the merciless grip of the forcep, now invites our utmost skill, and the handiwork of a mechanic, and day by day we will find the burden heavier, and finally the overwhelming conviction will come that there are no skilled helpers.

This is a matter, gentlemen, worthy of consideration, and not beneath the dignity of our calling.

What are we going to do about it?

TEETH WITH EXPOSED PULPS.*

BY B. MERRILL HOPKINSON, D. D. S., M. D.

The author of the paper upon the above theme which appeared in the July No. of THE INDEPENDENT PRACTITIONER, having read the criticism upon it in the Oct. No., takes great pleasure in correcting the errors into which the critic appears to have fallen. The writer is glad that his paper has been thought worthy of examination, although he is surprised at some of the points taken by his opponent for discussion. He has nothing to add or retract. His *modus operandi* must stand as set forth in THE INDEPENDENT PRACTITIONER, and the record of many hundreds of pulpless teeth treated and filled, with no failures, is the strongest argument he can offer regarding the efficiency of the method in his hands.

The first point in the criticism is based upon a misapprehension of the pathological condition of the case mentioned by the author in his paper, and it is upon this premise that a large part of the article of the opposition is founded. From his remarks the reader would be led to infer that the author had not devitalized the living portion of a pulp, which pulp he admitted was partially dead, by speaking of the presence of pus, indicating, as the writer is well aware, decomposition after death. The author's critic says: "The indication to most of us would be that devitalization had already taken place in the body of the pulp." The presence of pus at the point of pulp exposure does not indicate, in many instances, more than the termination of a localized inflammation just at the point where the pulp is exposed, beyond which may be found irritated or inflamed, but still living tissue. The practice of the writer, as he has before stated, is to devitalize the living portion of such a pulp, and in so doing relieve his patient from distress, as well as hasten the death of the living part, which, "if you give it time," would unquestionably after a "few hours or days" or weeks of time, together with exquisite torture, likewise die from exposure. It is sincerely to be hoped that our brother in Chicago does not wait "a few hours or

*It is a matter of regret that it has been impossible to find space for this article until now. It was sent in time for the December number, and the delay in answering the critic has not been the fault of the author.—EDITOR.

days of time when a line of demarkation and practical separation will exist between such root filaments and the dental nerve," before he renders his patients such service as may relieve them from pain. The writer will add in this connection that experience teaches him that the vitality of the dental pulp is frequently most persistent, and he has known of many cases where such vitality has remained, when the pulp has been fully exposed, for not only a "few hours or days of time," but for weeks, when, for reasons best known to the individual, a preference is shown for continuous or intermittent pain, rather than to consult a specialist and obtain immediate relief.

There are many practitioners, advanced men, for whom we have the greatest respect and admiration, who pursue a very different course from that advocated by the writer with regard to saving exposed pulps, but all agree with him concerning the existence of vitality, in many cases, where suppuration is present at the point of exposure. Let us quote Dr. Wm. H. Atkinson, and, while the author has written in opposition to the precepts of this most able man, he can but respect them greatly, and when a suitable and convenient opportunity offers he will endeavor, if possible, to profit by them. Dr. Atkinson says (*vide* INDEPENDENT PRACTITIONER, May No. page 256): "If the pulp be sufficiently exposed we can very readily see if there is a drop of pus already formed at the point of exposure. If there is a drop of pus there, the character of that is almost certain to be a favorable indication for saving the pulp." He evidently does not think that devitalization has "taken place in the body of the pulp," and in this he represents a large class of scientific and practical men, many of whom could be quoted, if necessary, in support of this fact.

We may see very clearly, then, that a portion, and a large portion, of a pulp may still be, and frequently is, alive in a tooth, while immediately at the point of exposure decomposition and death of the tissue has taken place, as shown by an oozing of the pus. The pus oozes forth because it is under pressure, and by enlarging the point of exposure and relieving the pressure alleviation to the patient is sometimes afforded, but only very slight in degree when a complete exposure has existed from which pus has previously flown, and it is only after a suitable application has been made that the individual experiences complete relief. In some cases violent pain for a brief

period follows the use of the drugs named in the author's paper, of itself evidence of remaining vitality, to be speedily followed by entire freedom from suffering. In those cases where there is only a partial exposure, viz., when a thin layer of dentine confines the pus, instant relief is afforded when that layer is removed and a free vent secured for the flow of pus. This, however, is only temporary, unless the entire contents of pulp chamber and root canals be already dead, and must be followed by appropriate treatment according to the views of each individual operator, in order to secure permanent immunity from distress. Having seen, then, that an exposed pulp, suppurating at the point of full exposure, is not necessarily a dead pulp, the reason "why was the patient in distress when he entered?" is shown to be the presence of suppurating, dead tissue, exercising pressure upon, in contact and in conjunction with, inflamed living tissue in the pulp chamber and root canals.

"Why is it relief is experienced by the individual in distress?" is the doctor's next interrogation, and we are told, "because a point of no resistance has been made by the excavator." The author thinks the "resistance" theory has been sufficiently explained away and requires no further comment, and that he has satisfactorily answered the above question. Cases in which suppuration of the pulp appears differ greatly, have different symptoms, and require different treatment. The intention of the passage criticised was simply to show the author's manner of devitalization as applied to all cases requiring such procedure, and for which there was no claim for originality.

As the "Echo" did not deign to give an answer to the question concerning the "principles of hydrostatics," the writer will also pass it by with the remark that a fluid (pus) will by its weight readily find a point of pulp exposure, if one exist.

The writer is always pleased to have his modes of operating criticised, for by genuine criticism and discussion new thoughts and ways are brought to light, and improvement is to be looked for in all who thus engage the mind; but he must add, in conclusion, that he does not regard the larger part of the paper to which this is answer, as one the reading of which would be instructive or beneficial, and he would respectfully recommend that future strictures upon others should be marked by more of candor and less of sarcasm and captiousness.

ORAL HYGIENE AND CARE OF THE TEETH.

BY C. E. H. PHILLIPS, D. D. S., NEW YORK.

There is nothing more essential to the preservation of the teeth and the normal standard of their surrounding tissues than the judicious use of the brush. Most persons of education and refinement cleanse the teeth at least once a day, and that generally at the time of their morning ablution; a smaller number also use the brush regularly before retiring, and there are those who do so after each meal; but of all these, the proportion of those who use the brush properly is wofully small. This is evidenced by the teeth and gums as they are presented to the dental practitioner, and by the exclamations of surprise on the part of the patient upon being instructed in this particular.

It is, of course, desirable that the teeth should be brushed upon arising in the morning, and the mouth rinsed after each meal sufficiently to remove food fragments, but it is of infinitely greater importance that they should be thoroughly cleansed before retiring at night, that all the interstices and irregularities between the teeth may be freed from particles of food, which would otherwise be mixed with the saliva, and if allowed to remain in the mouth during the long hours of repose become acidulated, ferment and decompose, causing incipient decay and hastening it where already commenced. The brush, then, is the all-important factor in the maintenance of a cleanly mouth, and in the selection of it patients are oftener puzzled. Nor is this to be wondered at, when every druggist and many venders of fancy wares offer various sizes and designs, the most of them ill adapted to their special requirements, and perhaps causing positive injury when an improper choice is made. When doubt arises concerning selection the dentist should be consulted.

In the majority of cases a small brush will accomplish a better purpose than a large one, from its ease of application, both inside and outside the dental arches. It should be borne in mind that, with use, a new brush soon softens; therefore, when selected, the bristles should be fairly stiff, not too closely placed, and if corrugated they will be found more advantageous in displacing particles

between the teeth. In the use of the brush, too, many are content with the energetic rubbing of the same across the faces of the teeth, often to the injury of the gums. This is a mistake, for it should not be a severe operation, but a delicate one, to be carefully performed.

After brushing with a semi-rotary movement the free surfaces of the teeth, distributing the attention equally to those well back in the arch, the brush should be patted upon and against the gums and teeth at their necks, and passed (by a slight turning of the hand) in the direction of the length of the teeth, toward their cutting edges. This brushing from above downward in the upper arch, and the reverse in the lower, stimulates the gums and induces them to cling to the necks of the teeth, instead of forcing them back, which may be done by too harsh brushing across them. The bristles are forced between the teeth, freeing their approximal edges of accumulations.

Though more difficult of access, the inside surfaces should in no wise be neglected. The unfortunate, irregularly crowded position of teeth in the mouths of many individuals, renders it imperative that something more searching than the brush be employed, the bristles not completely passing between them. In such cases the judicious employment, after meals, of a tooth-pick, either quill or wood, and the frequent use of waxed dental floss, to which a little powder may be attached, will prove a great benefit.

Water alone is not sufficient to free the teeth from mucous secretions, hence the question naturally follows: With what should the teeth be cleansed? A good powder is of great assistance. As with brushes, so with powders, pastes and washes; their number is legion, of every variety and of different flavors. Though excellent preparations are offered, many are manufactured with little or no knowledge of the essential requirements. The dentrifice should be carefully selected, of the finest quality and easily removed from the free margins of the gums by rinsing. A little white Castile soap may be used, either with or without the powder, with cleansing and beneficial effect. Charcoal should not be used in any form. A simple, though grateful and very efficacious mouth-wash for soft and spongy gums, is common salt and water.

Children should be instructed in the habit of brushing the teeth at as early an age as possible.

When patients appreciate the importance of oral hygiene and practice cleanliness in the mouth, with the consequent maintenance of the normal condition of the secretions, much pain will be avoided, many teeth saved and a decrease in such diseases as pyorrhœa alveolaris and pericementitis must result.

The following excellent general directions for the care of the teeth have been issued by the Medical Committee of the National Dental Hospital, London:

1. The teeth should be cleaned at least once a day, the best time being at night—the last thing. For this purpose use a soft brush, on which take a little soap and then some prepared chalk, brushing up and down and across. There is rarely any objection to the friction causing the gum to bleed slightly.

2. Avoid all rough usage of the teeth, such as cracking nuts, biting thread, etc., as by so doing even good sound teeth may be injured.

3. When decay is first observed advice should at once be sought. It is the stopping in a small hole that is of the greatest service, though not infrequently a large filling preserves the tooth for years.

4. It is of the greatest importance that children, from four years and upward, should have their teeth frequently examined by the dental surgeon to see that the first set, particularly the back teeth, are not decaying too early, and to have the opportunity of timely treatment for the regulation and preservation of the second set.

5. Children should be taught to rinse the mouth night and morning, and to begin the use of the brush early; likewise the tooth-pick.

6. With regard to the food of children, to those who are old enough, whole-meal bread, porridge and milk should be given. This is much more wholesome and substantial food than white bread.

7. If the foregoing instructions were carried out, comparatively few teeth would have to be extracted.

POST-GRADUATE STUDY.

BY C. N. JOHNSON, L. D. S., D. D. S., CHICAGO, ILL.

The fact that we can never become truly scientific men as the result of a collegiate education alone, leads to the question as to which is the best method to pursue in a system of post-graduate study. Heretofore, those men who have risen to high rank in the

profession have done so mostly through individual effort. They have accomplished their results by long hours of labor in their own chemical or histological laboratories, with the silent help of the microscope. They have seldom had congenial spirits by their side, who were searching after the same truths and who could lend their advice or assistance in the solution of difficult problems. When a man is studying entirely by himself, the tendency is for his theories to begin to run in a groove. He allows his attention to be drawn to certain phenomena in a given case, sometimes to the exclusion of others which may bear as great a relation to the case in hand, and in this way his opinions become biased. He may even wrongly interpret the microscope in some of its minor manifestations, and thus construct a theory on a false basis. He is subject to an infinite number of mistakes, which would not be so liable to occur if he had the assistance of a man who was as zealous as he in the pursuit of knowledge.

On no other ground can we account for the fact that our most learned men will get up in a society and disagree on some fundamental principle, that should have been long ago settled by proper methods of study. If a man had a companion, or companions, in his study, who would work in harmony with him, each one would tend to keep the other from going very far in the wrong direction. More good will be accomplished in the way of post-graduate study if several members of the profession will form a class here and there, and work together for the general advancement of science. Of course this could only be done in cities, and even then there are many drawbacks to such a scheme. The work would necessarily have to be done mostly at night, and original investigation in science requires a great amount of time. It would be difficult to get a body of men who would willingly spend the time, and who would work in sufficient harmony to obtain the best results. Every member of the class would have to sink his individual interests, and each work for the common cause. They would all have to be above personal ambition, and the class should be conducted as much as possible without politics. No one member should seek glorification in the eyes of the profession. This is the greatest drawback to the attainment of pure scientific knowledge in the profession today. There is too much of a clamoring after office in all our organizations. There are too many political bosses in dentistry. If

a dozen of our average dentists should organize for any purpose to-day, the probabilities are that, in four or five years, eleven of them would be scrambling for the presidency, and the other one would be wire-pulling for some favorite member. This is all wrong, and it is because it is wrong that I have presumed to mention it. It is contrary to the true spirit of professional dignity. Just so soon as members of the profession can lay aside their ambition to obtain office, and concentrate their efforts towards the attainment of knowledge, just so soon will we have a progressive profession, and render ourselves worthy of being called professional men. It is true that to the average man the mere attainment of knowledge forms a poor incentive to continued application, but I have almost come to believe that until a man can conquer all desire for personal aggrandizement, he is not in a position to be the greatest possible benefit to dentistry.

To those practitioners who are so situated that it is not practicable for them to unite in classes for post-graduate study, the only alternative is to adopt some system of study by which they can accomplish the most individually. And they must adhere to whatever system is marked out, for without systematic work little progress can be made.

Some one hour in each day can be laid aside for purely scientific study, and that hour invariably held sacred for that purpose. At first thought most practitioners will exclaim that they cannot possibly spare an hour every day for this purpose, but a little devotion to the interests of science will soon point out some one hour of the twenty-four which heretofore has not been occupied to the best advantage, and which "never will be missed." For the first month or two this study hour may at times be a little wearisome, but perseverance will soon overcome that, till at last it almost becomes a habit; and as the knowledge of scientific matters increases, the interest in the work will counteract the natural tendency to neglect that which we are not imperatively called upon to perform.

The line of study which each man is to pursue must be determined by himself, and in that department for which he has the best liking will he be the most certain of success. But before singling out any one department for minute study, he should gain a general fundamental knowledge of the basal principles relating to the whole of dental science. The main thing, however, is to get to

work, and work faithfully, no matter how many are the discouragements. When we become a profession of workers and thinkers, we will become a profession of scientific advancement, and to that end let us all unite.

OVERCOMING LEVERAGE IN SUPERIOR DENTURES.

BY L. C. BRYAN, BASEL, SWITZERLAND.

There is a large class of cases applying for artificial dentures, which give the operator serious and continued trouble in their adjustment to retain their hold on the membrane, under the strain brought to bear on them from the remaining lower incisors, or incisors and bicuspids. The patient presents an edentulous superior maxillary, with from six to ten lower front teeth and no remaining molars. In many cases it is impossible to persuade the patient to have a lower set to provide a masticating surface at the back, which would equalize the strain and give an adjustment of the articulation which would produce the desired result. Often if a lower set is made, the patient cannot or will not wear them, and the result is the same; the upper denture is tilted down at the back, food works under and discomfort results, even if the case does not come completely out. These lower front teeth continue to displace the most carefully adjusted upper dentures, and the inventive skill of the dentist is taxed to its utmost, in most cases without satisfactory results. The operator, in despair, finally dismisses the case, with the assurance that the only help for the unhappy patient lies in patient practice and experimental manipulation of food in mastication until sufficient control is acquired.

A case of this kind which the writer has treated has given such comfort to the wearer and relief to himself, that the method of overcoming the difficulty is here presented. The first step was to secure a perfect adaptation of the upper set. A loose impression in modeling composition was taken in a long cup extending over the tuberosities, and a model was made over which an impression cup of soft sheet tin was loosely fitted. Sheet lead would serve the same pur-

pose. There is a composition largely advertised in Europe, which is simply shellac rolled into sheets, bronzed over and ornamented with its title in raised letters. Shellac may be rolled out, and when dipped in hot water can be readily pressed into any desired form of impression cup, and although somewhat brittle if too thin, it serves the purpose in an admirable manner.*

A cup being fitted loosely to the model, slow setting plaster was mixed, salted and stirred, until it began to stiffen and could be built in a pyramid in the center of the cup, so that when pressed up no air bubbles would remain in the palatal portion. A small quantity of plaster was placed with a teaspoon handle on the buccal side of each tuberosity and the cup pressed carefully up, first posteriorly, cutting off the flow of plaster backward and causing the surplus to press out labially. When firmly set the impression was found to have a strong suction hold, which is the first element of success. The resulting model was heroically trimmed labially and buccally (to compensate for the expansion of the plaster model), and also on the soft parts palatally. Folsom ridges were also cut across the posterior part of the model with a spoon-bill excavator, and a long, narrow air-chamber adjusted over the hard ridge of the palate. The bite being secured and the teeth adjusted, a sufficiency of wax was built down at the tuberosities to articulate with the ridge of the lower jaw for half inch in length.

When packing, a thin layer of red rubber, of which the plate was composed, was carried to the end and over the tuberosities, and the remainder of the bite built down with velum or soft vulcanizable rubber, somewhat higher than the wax bite indicated. The result was all that was anticipated. This soft cushion at the back gave no pain to the lower ridge, and held the case firmly up at the back while masticating on the front teeth.

Presumably the last molars of the upper set might be elongated to articulate with the lower alveolar ridge, or the more durable hard rubber be extended down for the same purpose, but the soft rubber cushion gives no pain to tender lower ridges of old persons, and can be elongated to touch slightly before the incisors meet, thus anticipating the leverage.

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*An ordinary britannia impression cup may be bent to an approximate fit, and in this a wax impression taken, which can be carved to an exact adaptation for the plaster impression. The wax should be melted upon the cup sufficiently to make it adhere.—Editor.

Reports of Society Meetings.

CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

Regular meeting, Thursday evening, January 20th, 1887, the President, Dr. B. F. Luckey, in the chair.

Dr. A. W. Harlan, of Chicago, read a paper entitled "Surgical and Therapeutic Treatment of Caries and Necrosis of the Alveolar Process in Man." (See page 169.)

DISCUSSION.

Dr. C. S. Stockton—I have been much pleased and gratified with the paper that has been read. It is true that a large proportion of the diseases incident to necrosis are due to dead pulps in teeth. I have a case now, in which, with the exception of a left central incisor, every one of the ten anterior teeth in the upper jaw is dead. Fluid injected at the second bicuspid on the right side would issue from four or five different openings.

I think destruction of the pulp one of the most important matters that we should guard against. The essayist has very clearly expressed the difficulty met in the removal of this tissue—which should always be done—and I know of no better way of filling the pulp chamber and canal than that which he has described, except that I always use eucalyptus for the wiping out of the canal. I find that the gutta-percha with which I fill the canal is more easily sent home after having used that. I find per-oxide of hydrogen a very excellent preparation indeed, so much so that I have come to the conclusion which, a few years ago, I almost denounced my friend Dr. Atkinson and some others for advising, that you can remove a dead pulp, and at the same sitting fill the tooth and root permanently, and dismiss your patient without fear of subsequent trouble. I know of no agent that is of more value to the dentist than this. When you use it faithfully you know that you have thoroughly disinfected all the parts.

In this matter of bridge-work, which has almost revolutionized the practice of dentistry, our friend, Dr. Truman, was not far from the truth the other evening, when he denounced the driving up of the bands too far around the root of a tooth.

Dr. W. H. Atkinson—I desire to congratulate Dr. Harlan upon his growth. How long have we been privileged to hear such papers as we have heard to-night ?

He has spoken of things that are very mixed, and very ambiguous, and very brilliant. It takes a master to discriminate between the alternations of generations of the fore-steps in the growth of the various kinds of seeds that are presented, because each has to follow the type of its own order, which is not manifest until the series is completed. He has given us some very recent nominations and some very old fogy nominations. He has not defined what he meant by caries, as differentiated from necrosis. Caries is superficial necrosis, every time. The old idea of necrosis is that it is death of the molecular conditions of the tissue that is extended over a considerable territory. Does that considerable territory die all at once ? No. There is first an inhibition of the neural currents, then of the vascular currents, and inflammatory action being set up the line or periphery of disturbance of the vessels and nerves that preside over the territory in that neighborhood comes in contact with the healthy tissue and further inflammation is set up, and the line of demarkation is extended. That was the excuse for adopting that abomination, expectant treatment, until the disease had produced the extensive destruction. In medicine or surgery, as in morals, right the wrong action the moment you know it to be wrong. But be careful that you know what you are about. Take Davy Crockett's plan; be sure you are right, then go ahead.

Where is the limit between the living tissue and the dead ? It is dead only in degree. We have not studied these questions of nutrition deeply enough to enable us to do any more than examine mass presentments; we cannot get a clean grip of just where the diseased condition in its lowest expression, or in its earliest exhibition, manifests itself, begins and ends, in order that we may discriminate when we cut into healthy territory, and determine whether the tissue is dead or dying. "Dying thou shalt die," as the book says, meaning that the life principle shall be taken seriatim. The extant pathology stands like a black beast in the way of our diagnosis. But for the misapprehension resulting from it, we would have a better perception of the line of demarkation between healthy and diseased territory, and would know exactly what to do to correct the trouble. Until we understand the series of construction

of the tissues, organs and systems, we will not be able to discriminate the retrogression in the nutrient activity that constitutes the disease under consideration.

Unfortunately, whenever we see necrosis everybody thinks there is bone involved. Bone, as bone, never dies. It dies as a molecular mass—as soft tissue. It is the bone corpuscle, the protoplasm in the bone corpuscle, that is the seat of death at first. Nutrition always takes place in soft tissue, always in protoplasmic mass. The deterioration of the tissue has its territory right there in this protoplasmic mass, and in its inception is evidently expressed at that point, and it then extends by reason of the arrest or reversal of the nutrient current. It depends upon how many of those little ponds, with their connections in the canaliculi, are involved, to discriminate how much territory is involved.

How shall we remedy it? In every case where I find marked periostitis I would open up the cavity and peel off the periosteum until I came to where it has a firm and healthy attachment, and then I would bur away all the dead bone until I get fresh blood. I would not put in a cotton tent. Be sure you have all the dying territory cut away and obtain a clean, fresh surface. Disinfect so that there shall be an aseptic condition present, and then bring the tissues together and leave it to nature. Make the tissues come together in such a way that there will be a pocket formed, into which the serum that makes the first coagulum may be wept. This embryonic tissue, so formed, is differentiated into nerve tissue, muscle tissue and bone tissue. If the cavity is so large that the resilience or stiffness of the walls is not sufficient to coaptate the surfaces so as to form a pocket for holding the serum, then you should use a sponge-graft of a size that will fit the space exactly; or, if you please, make it a little larger, and the serum that is wept out will permeate the trabeculæ of the sponge. Do not put in a drain tube, because in doing so you confess that you are not certain that you have gotten all the diseased tissue out.

Suppose we do make a little mistake in following the line I have indicated; do you suppose the inflammatory process will be set up throughout the entire territory? No. In such a case cut the sponge down until you come to the territory where you know there has been new growth, then repeat the operation on a smaller scale, with a smaller bit of sponge, and your operation will have been

completed. You need not remove that which has already "taken." If we have a sufficient amount of territory, and so shaped as to allow the clot to be formed, then the result will be just such as we obtain in the sponge-graft. When the sides of the sponge-graft and tissue do not "take," and the homunculus does not come up into the pocket and fill it, if you pull a little on the sponge you will see the blood start. You know then that there has been serum wept out and coagulum formed. That is the exact equivalent of the blood seen in a chicken's egg. If there is a little bit of territory that has not been able to receive the pabulum, take a pair of scissors and clip it out, going down until you see fresh blood ooze out, then repeat the operation with a smaller piece of sponge. First disinfect the territory with bi-chloride of mercury, one part to one thousand of water, then insert your sponge. The bi-chloride of mercury in this strength is not an escharotic—it is simply a coagulant. That coagulation is the fibrilation of lymph, and is equivalent to the fibrilation that occurs in the incubation of the chicken's egg. When this tissue has been perfected it is so like the original structure that I no longer call it scar tissue; I call it reproduced tissue.

The paper is chock full of misapprehension all the way through, by reason of the adherence of the author to the old text-book doctrines, and his inability or unwillingness to accept the latest interpretation. But there are so many sharp fellows among us now that it is almost impossible for one swamp-angel of error or ignorance to escape.

Dr. G. A. Mills—A recent case in my practice illustrates Dr. Harlan's theory of treating pulpless teeth by medication and immediately filling them. My usual practice is to complete the operation, including medication and filling, at one sitting. If I have any doubt in a case of fistulous opening, feeling that the patient is liable to any disturbance, I tap the alveolus in the territory of the apex of the root, which insures it absolutely against any unpleasant disturbance. This has been my practice for years, following the teachings of Dr. Atkinson.

Dr. R. Finley Hunt—I do not feel exactly qualified to criticise this paper in all its details, nor in general. I only wish to make one remark, which I made on a former occasion, and which is based on the opinion that I have stated, that medicine never cures. My

opinion is that, as a general rule, these local troubles are the result of constitutional or systemic derangement, determined towards a particular locality where the symptoms are manifested.

The treatment that Dr. Harlan recommends is excellent, because it tends towards the point of removing the local cause of the trouble. My belief has been, for a long time past, that with a proper prophylactic treatment all our local diseases would cease, and we should have no trouble with the teeth. In the opening of his paper, Dr. Harlan gave us the idea that the habits or environments of a certain class of teeth were productive of very serious injuries of the character which he has described to-night. Here is, I think, where many great troubles in the human race originate, as exhibited in the decay of the teeth and the affections of the oral cavity, including both the hard and the soft tissues. The prophylactic treatment case would be a general systemic treatment, mainly through hygiene. When I say hygiene, I include all those agents and accessories which go to make up a perfectly healthy human being. I could enlarge upon that more fully to-night, but inasmuch as I have been requested by Dr. Watkins to read a paper before this society next May, I have concluded that I would select as my subject something bearing on these points, and at that time I hope to present my views to your society in a better manner than I am able to do to-night.

Dr. Atkinson—With regard to the remedial agents to be used in these cases, there is a great variety to choose from; but if you will look closely to their chemical constitution you will find that they are almost isomeric, and that their value depends upon their holding oxygen, as one of their equivalents, with a loose grip—as H_2O_2, $H_2O.$, and CO_2 which is carbonic di-oxide, or carbonic acid gas. It has no affinity for the tissues whatever, and is therefore no poison. Where the combustion is complete, CO_2 may escape in bubbles with the pus, and has been mistaken for oxygen by those who do not take into account the chemical metamorphosis that takes place. These agents are less specific than they have been supposed to be. We might enumerate turpentine, eucalyptol, sanitas, oil of cloves, eugenol, carvacrol, carbolic acid, creosote, hydro-napthol, resorcin, and many others. Eucalyptus, eucalyptol, eugenol and carvacrol, are simply turpentines with an extra equivalent of oxygen loosely held.

Diseased actions are many times producers of ptomaines or dead

protoplasmic bodies, which are sometimes very poisonous, at other times negative, or food. They are efforts at making ashes. Instead of being oxides they are disoxides—alkaloids—the chemical equivalency of which we are just beginning to comprehend.

President Luckey—If there is nothing further to be offered in the discussion of this paper we will pass it and call upon Dr. Marvin, who has a paper to read to us to-night.

Dr. C. A. Marvin then read a paper, substantially the same as that read before the Second District Dental Society, at its January meeting. (See INDEPENDENT PRACTITIONER for February.)

DISCUSSION.

Dr. R. Finley Hunt—I would like to say a few words in connection with this paper, because of the differences that have arisen in regard to the International Medical Congress. I may be confused to-night, or the paper may be mixed; it certainly seems to me that one or both are very much mystified. I cannot agree with the author of the paper in all the positions taken, nor in the conclusions arrived at. I do not propose to go into any statement of this disagreement. As the paper states, and as we know from our reading, opposite positions were taken up in a former paper, to which this is supposed to be a reply. When I came to New York, the feeling was running high between two factions of the dental profession, and steps were taken which, in my opinion, were calculated to continue the contention. Last night, however, somewhat to my astonishment, although I had some intimation of what was going to take place, after we had been hospitably entertained by the First District Society of New York, speeches were made by two gentlemen, one of whom sits on my right (Dr. Kingsley), and who was considered, I believe, to be the head and front of one of the factions—I call them so simply because they have been so named—and the other gentleman was on my left (Dr. Allport), and I see his pleasant countenance now before me, a gentleman who is intimately connected with the section on oral and dental surgery in the International Medical Congress which is to be held in September. The speeches that were made, and the ideas and sentiments and intentions that were conveyed, seemed to me to be a sort of revelation of a new state of affairs. Last night, at the close of the meeting, I was not able to form an opinion upon the subject; it has been a great deal

in my thoughts to-day, and the conclusion I have drawn is that the occurrences of last night constituted a treaty of peace between the two parties, which would inure to the benefit of science, and, if I understood correctly, to the benefit of our profession. I must say, Mr. President, that I feel grateful for this, because I never like to see differences of opinion carried to the extent that these seemed to have been, and with such apparent good grounds on both sides, because the arguments of each of the gentlemen are good and forcible. I suppose that one or the other must be wrong. But it seemed to me last night that the difference was practically settled. The gentleman from Chicago, my esteemed friend of many years' standing, announced his intention, and we must give him credit for sincerity, to advocate with all his might and vigor, and he has a great deal, the assembling of an International Dental Congress in this country at some future day. My friend on my right, whom I highly esteem also, although he is not a friend of so long standing as the other, announced his intention, and the intention of those for whom he spoke, of giving all the aid and assistance in his power towards the success of the section of oral and dental surgery in the International Medical Congress. Thinking it over, I thought this was a healing of a breach that threatened to give great trouble to our profession. At the same time, I must say here that the speeches I heard and the healing of the breach, have not altered my views of the situation in the slightest degree. But I am disposed always to keep my individual opinions in the back-ground, when their promulgation might interfere with the general good and welfare, therefore I abstain from saying anything on this paper, except that either the paper or myself must be somewhat mixed. I arose only to express the hope that what was done last night will receive the sanction, so far as it possibly can be given, of the gentlemen on both sides of the question. I hope that this paper that has been read to-night will give rise to no discussion as a discussion, because the consideration of it at this time will tend to interrupt the pleasant relations now existing between my friend on my right and my friend before me.

Dr. W. H. Dwinelle—Nevertheless, Mr. President, inasmuch as the paper which has been read to-night, and which we have listened to with a great deal of interest, is an attack upon a paper that was read upon a previous occasion, the author of which paper is here

present, I think that in the interests of justice and courtesy we cannot but call upon him to make his rejoinder. I think we all have sufficient confidence in him and in his method of disposing of a difficult subject; we have sufficient confidence in his courtesy and in his method of dealing with a subject which has never approached so delicate a character as it has to-night, to feel warranted in extending to him the courtesy of a reply. I hope, therefore, that the author of the paper will be called upon.

Dr. Hunt—I was fully aware of the apparent injustice that I was doing to my friend Dr. Kingsley. I did not intend to do him any injury, because I am satisfied that he can meet the positions taken in that paper and answer the objections. I have even had the temerity to suppose that I could myself answer and refute many of the positions taken in that paper. But it was simply in the interests of harmony that I made the suggestion, while I laid aside my own desires in relation to the matter. I think it would not be exact and equal justice to give my friend Dr. Marvin the last say, but I was speaking only in the interests of our profession. I have not the slightest objection to hearing any discussion on the subject.

Dr. Atkinson—Mr. President, I think that every gentleman who has spoken has seen the aspect of this question which to him was satisfactory. I agree with everything that has been said on both sides of the question, by reason of what occurred last night in New York, and to which reference has been made here. It would be unfair to further agitate this matter; it would imply that what we heard last night was insincerely said, and I hold that, in justice to our own sense of uprightness, we are bound to take the asseverations of last night as final regarding the differences that seem to have existed. Dr. Kingsley said distinctly that he would do all in his power to further the interests that he had been supposed to attack; and, on the other hand, I think it was the general sentiment of the assembly that all would join to make their best effort to see, in coming time, that an International Dental Congress shall be called. Those of us who are old enough will recollect that this proposition is not a new thing. A good many years ago there was a committee appointed for that very purpose, in the American Dental Association.

And I say, as my individual judgment, that Dr. Kingsley never

stood on so high moral ground before our body as he did last night. The only implication that can reverse that judgment is that what he said was insincere, and I am sorry for the individual who is willing suspiciously to question the interior working of any man's mind.

Dr. Allport—Mr. President, I need not express to you nor to this society my very great admiration of the ability displayed in the paper that has called out this discussion. Whilst there may be, perhaps, in the minds of some, a lurking suspicion of something wrong, I for one do not wish to charge him with it. I am bound to say that I believe him to be sincere in what he said. Yet I do most earnestly believe that the position he has taken is wrong. I do not believe that dentistry is, or ever can become, an independent profession. We derive all knowledge from the collateral sciences, and ours particularly draws from a medical source that which makes our operations intelligent. Take away from them the medical instruction which makes them scientific, and ours becomes nothing but a mechanical pursuit, or an artistic mechanical pursuit. Some medical knowledge is as necessary in our profession or specialty as it is for the making of intelligent operations upon the eye or the ear, or any other part of the body where the operation is surgical, and our ability in this direction must rest upon the foundation of medical intelligence.

In regard to the paper just read to-night, I must say that it is a very able paper, and I think the essayist has answered the arguments of Dr. Kingsley in a very forcible manner. There is no longer, in my judgment, any question as to whether dentistry is a specialty in medicine. It seems to me that no sensible man can deny it, any more than he can deny that any other department of the healing art that deals with a particular part of the human organism is a specialty in medicine.

The question is not as to whether it is a medical specialty, but as to whether we are medical specialists, and it is a mere matter of education and of fact. If we treat the human organism, or any part of it, without having a medical education, we are not medical specialists, any more than is an uneducated corn doctor or a barber. A man who has not the foundation of some medical education is in no sense a medical specialist, although he practices a medical specialty. It requires a medical education to make an intelligent

practitioner in any department of the healing art; with that medical knowledge he becomes a medical specialist; without it he is not. I like to be called a specialist, and to have our profession called a medical specialty; but before passing my judgment or my opinion as to whether he who practices it is a medical specialist or not, I feel very much as Mr. Weller did when he said he loved weal pie, especially if he knowed the woman that made it, and was sure it wasn't kittens. If I am to pass any judgment as to whether a man practicing dentistry is a medical specialist or not, I must know the man who practices it, and have some information as to whether or not he knows anything about medicine. If he does not, he is in no sense a medical specialist. I do not mean that a man must have gone through the whole curriculum of a medical college and received its diploma. I simply want a basis of medical knowledge. I do not care where a man gets it, so long as he possesses it and is an intelligent man.

Mr. President, I am reminded that there is something awaiting you up stairs that is much better than anything I can give you, but just a word more. In regard to what occurred last night I would say that I receive it in all sincerity. As those who have been opposed to this section are going to take hold of it and try to make it as interesting and creditable to our profession as possible, I do not believe there is a man engaged in it who will not, when the time comes for the proposed International Dental Congress, be willing to take his place in the ranks and work for the success of that also; but if we wish to make an International Dental Congress a memorable meeting, let us work faithfully to secure a favorable issue for the Medical Congress.

Dr. N. W. Kingsley—Mr President and gentlemen, it hardly seems fair that I should be called upon at the last moment to reply to a paper that has been read this evening, reviewing a paper of mine which was never read before this society. I am not aware that there is any one here who possesses sufficient knowledge of my paper to say whether the so-called review touches one of my arguments, and yet, at the last moment, I am forced into a corner, with no opportunity to reply or to state what my position is on this question. Besides, it has been already announced that you are in expectancy of something better up stairs than can be offered here. I cannot do it; it is too late.

President Luckey—It was the intention of the chair to extend to Dr. Kingsley all possible courtesy in the way of opportunity to answer the paper and the criticisms, and the chair is very sorry if Dr. Kingsley feels hurt at being crowded out or not having sufficient time. It certainly was not the intention of the chair to show any discourtesy to him, but on the contrary to give him the fullest scope in answering the paper and the statements made therein.

Dr. Kingsley—How many minutes will you give me now?

Dr. Levy—Ten minutes are sufficient to get to the station.

President Luckey—Dr. Kingsley, there are ten minutes left at your disposal.

Dr. Osmun—Mr. President, I dislike very much to see the discussion shut off in this manner. Dr. Kingsley ought, in all justice, to have an opportunity to present his views, and if there is any way of getting to Newark to-night without taking the first train, I move you that he have ample time.

Dr. Kingsley—Gentlemen, let me appeal to you, then, to earnestly consider the few words that I have to say, because they must be compressed into the briefest possible sentences.

I may say that I agree with everything that has been brought forward in the review read this evening, excepting the attempt to cast a reflection upon the title of President of the New York State Society, which has been used in connection with my paper. It is true that I was so announced in Boston before the paper was read there, but it was not through any suggestion of mine. I am the President of the New York State Society, and I am proud of the honor, but that society is not in any way responsible for my utterances in that paper; nevertheless, I can assure you that the sentiments there expressed are the sentiments of a large majority of the members of the State Society.

Nobody denies that dentistry is a branch of the healing art. Every one who knows anything about it knows that it is a department of the healing art; but the *practice* of dentistry is one thing, and the *practice* of medicine is quite another thing.

The two departments of the healing art have arrived at that stage when they are as distinct and separate from each other as are the army and navy. The army and navy are branches of the general

government; they both use powder and guns, and both kill men, but they are entirely distinct organizations; their discipline, arrangements, methods and everything are totally distinct from each other, notwithstanding they have many things in common and have a common purpose, the defense of the government.

Medicine and dentistry are distinctly separate professions, not only practically, but also in their organizations, associations, institutions of education, literature and degree. No abstract theories or sentimental ideas of kinship can blot out the force of these great facts.

I do not use the term medicine in the broad sense of the healing art, but entirely as it is understood by the public; when we speak of a medical man we always mean a physician.

During the last three days we have seen in New York the largest gathering of dentists ever known, and I ask if you saw in all that great assemblage a single practicing physician. Was there a single member of the medical profession, practicing medicine, in attendance at those clinics or who cared anything about what was going on there? I think not. Was not that convention, in its debates and its clinics, as separate and distinct from anything that medical men are interested in as though we had nothing in common, notwithstanding the fact that both professions are branches of the healing art?

There is one sentence in my paper that nobody has yet attempted to answer, and I believe it is so pregnant with truth that it is absolutely unanswerable. It contains the pith of the whole matter; and I believe that if you will reflect upon that sentence and realize how much of truth it contains, I will have 90 per cent. of this audience, and of men practicing dentistry, with me on this question. That sentence is this: "If to-day all the medical colleges and the entire medical profession were to be blotted off the face of the earth, the practice of dentistry would not be injured in the least, nor would humanity suffering from diseases of the teeth be one whit the less cared for."

Gentlemen, is that true or not? If it be true that at this day the medical colleges and the medical profession can leave the face of the earth and dentistry go on uninterrupted, is it not an independent profession?

Editorial.

DENTIFRICES.

The Pharmaceutical Record, not long since, contained an excellent article upon "Tooth Preparations," as viewed from the druggists' standpoint. There is no disputing the fact that very crude ideas exist among dentists, concerning the ingredients that should enter into the composition of a proper tooth powder. And yet the importance of the proper preparation of a dentifrice cannot easily be overestimated. When we reflect that under the stimulus of the warmth, moisture and presence of many fermentive organisms in the human mouth, food will undergo chemical changes in a very short time, the importance of keeping the oral cavity clean becomes apparent. There is many a housewife who will scrupulously wash and dry each utensil employed in cooking every time it is used, will thoroughly cleanse every plate upon the table after each meal, but who thinks that she has fulfilled her duty faithfully when she has once a day cleaned the teeth with which she eats. She would not let her children use a spoon that had not been washed, yet they are allowed to use their teeth for an indefinite time without scrubbing. At the most, from one meal to another the remains of food would only dry down upon the hard plate, while it will rot in the mouth during the same time. How thoroughly do such people illustrate the scripture adage concerning those who "make clean the outside of the cup and the platter," but whose inward part is full of all impurity.

The teeth may be carefully washed with water, but this is not sufficient. Unless they be kept polished, it is impossible for them to be pure. A rusty knife is never clean, for the roughened surface affords lodgment for matter that cannot be washed away. The same rule holds good with the teeth. A dentifrice or powder is occasionally needed to keep the teeth polished. The name of those offered for sale is legion, and the more ignorant of the character of drugs a dentist is, the more is he possessed with a desire to invent a new tooth powder which shall contain all manner of incompatible ingredients.

A western dental journal, not long since, published the report of a discussion upon "The Hygienic Treatment of the Mouth and

Teeth" in a dental society which, however, met in an eastern and not a western city. Here is what one speaker said:

From my experience, my results as to tooth powders are these: I do not put in any honey or sugar. Honey is the worst thing you can put in, next orris-root and next sugar. These should not be used because they are fermentable, and so make sore mouths from constant irritation. They have no place in tooth powders. If you want to use something in place of sugar, use bicarbonate of soda, and biborate of soda instead; the latter is a benefit and does no harm. Use glycerine if you wish a paste; it does not ferment in the mouth. In place of orris-root, grind up cloves. Use cassia or sassafras bark; these do not ferment, as their essential oils prevent. Yellow or red Peruvian bark is good. In making a powder I would use floated chalk instead of precipitated chalk.

Question. How do you get floated chalk?

Answer. I throw the chalk on the water and gather that which floats, and throw away all that readily precipitates. My formula for a good tooth powder is this: Take of floated chalk $\frac{1}{3}$, bicarbonate of soda and biborate of soda, each $\frac{1}{8}$; salicylic acid, $\frac{1}{50}$; extract cinchona, $\frac{1}{33}$; oil cloves, $\frac{1}{50}$; oil sassafras, $\frac{1}{50}$; and oil cassia, $\frac{1}{50}$. Subject passed.

Well, it was time it was passed. Here is one who pretends to stand as a teacher of others, and who asserts that certain articles should not be used in a dentifrice "because they are fermentable and so make sore mouths." And what, pray, are the "fermentable" substances to which this wiseacre objects? First, he "does not put in any honey or sugar." The sugar that is used in tooth powders is always cane sugar, and any one who knows anything of physiology knows that this is entirely unfermentable until it is changed to grape sugar, and this process requires some time to effect. Honey is readily soluble in the fluids of the mouth, as such ingredients of a good powder should be, and hence it could not ferment if properly used. After honey, this wonderful chemist considers orris-root as most objectionable, because of its liability to fermentation. There did not seem to be one present at the meeting who could correct such an absurd assertion. Orris-root cannot ferment, for it is not a fermentable substance. Bicarbonate or biborate of soda are not ingredients in any good tooth powder, because they have no virtues that specially recommend them for such a purpose.

"Floated chalk," or the process of obtaining it, as given by the speaker, is very funny. If he wants chalk he should use "precipitated," which is a chemical product, and is free from every

objectionable material. He would "float" his chalk to rid it of heavy or silicious matter, while precipitated chalk is chemically free from it.

The "formula" given is a curiosity. The apothecary who should endeavor to make up a powder from it would require to be a mathematician indeed. All of the proportions added together do not make an integer, and to compound this formula the chemist must each time take a fraction of an indefinite fraction, and when he is through he will have but a fraction as the result. Why will dentists assert such nonsense in the face of the world, and thus bring ridicule upon the societies of which they form a part? Why will men assume a knowledge which they do not possess, when their ignorance cannot fail of an exposure?

The amount of the whole is, dentists have no business to attempt the compounding of a tooth powder for common use. In special cases of diseased mouth, those who are quite competent should write a prescription to be prepared by a druggist, but the making of a proper dentifrice requires special facilities, which are not at the command of the average apothecary. Many years ago, Dr. I. W. Lyon, of New York, a regular graduate in dentistry, concluded to devote his exclusive attention to the manufacture of a dentifrice which should be approved by the best dentists. The formula was made public, and Dr. Lyon has continued to manufacture from it to this day, using only the best drugs and himself attending to their preparation, which is done by aid of perfect machinery. Nor is his the only good dentifrice manufactured. The S. S. White Dental Manufacturing Company make a number, which dentists can purchase. Lyon's powders are kept by all respectable druggists. How much more professional it is for a dentist, when he would order an ordinary powder, to write a prescription for one that is standard, than to attempt the compounding of such absurd formulas as that given above.

THE TOOTH-CROWN PATENTS

A decision has been rendered in the patent suit of the International Tooth-Crown Company *vs.* C. M. Richmond *et al.* A victory is claimed by both parties. The case was tried in the United States Circuit Court for the Southern District of New York, before Justices Wallace and Shipman. The opinion is by the former, and

commences: "The complainant is the owner of four patents relating to improvements in the dental art, all of which are alleged to be infringed by the defendants. This suit is brought for an injunction and accounting."

The opinion sums up as follows: "A decree is ordered for an injunction and an accounting as to the first of the patents in suit. As to the others, the bill is dismissed. Neither party is awarded costs."

Dentists will naturally desire to know what are the four patents involved in the suit. The opinion states that the first was granted to James E. Low, March 15, 1881, and is "an improvement in dentistry whereby artificial dental surfaces may be permanently fixed in the mouth in place of lost teeth without the use of plates or other means of deriving support from the gum beneath the artificial dentition." The patent itself says:—

"What I now claim as new is—

"1. The herein described method of inserting and supporting artificial teeth, which consists in attaching said artificial teeth to continuous bands fitted and cemented to the adjoining permanent teeth, whereby said artificial teeth are supported by said permanent teeth without dependence upon the gum beneath.

"2. An artificial tooth cut away at the back, so as not to present any contact with the gum except along its front lower edge, and supported by rigid attachment to one or more adjoining permanent teeth, substantially as and for the purpose set forth."

The second patent in suit was granted May 22, 1883, to Cassius M. Richmond, assignor, etc., and is for the invention known in the dental profession as the Richmond Tooth Crown. The decision declares this patent invalid.

The third patent was granted to Alvan S. Richmond, May 22, 1883, for an artificial denture, and is also declared invalid.

The fourth patent is declared invalid for want of novelty.

As we understand it, the dentist who attaches a bridge of teeth to bands fitted and cemented to adjoining permanent teeth and supported by such teeth, infringes the Low patent, which is sustained by the decision, and such dentist is liable for damages unless he shall have secured the consent of the International Tooth-Crown Company. The claim is for a *permanent* bridge, cemented to adjoining teeth. It would not seem, then, if we rightly understand

the claim, that any other kind of bridge is not covered by the patent. If it be anchored in any way other than by "continuous bands fitted and cemented to the adjoining permanent teeth," we cannot see that it would be an infringement. If it be a removable bridge, the claim would not seem to cover it. The bridge, as usually constructed and cemented to adjoining teeth, is not free to the public, but unless the decision is overruled by some higher court, will stand as the property of the International Tooth-Crown Company.

The patents for the Tooth-Crowns, at least all those adjudicated upon, if we can understand a law paper correctly, are henceforth, so long as this decision shall stand, free to the public, and may be used by any one.

PROSPECTIVE.

In the next number will be commenced a series of articles by Drs. Bödecker and Heitzmann, which will be continued through the year, we hope. The first articles of the series will be upon the development of Enamel, Dentine and Cementum. These will be followed by papers on Erosion and other equally interesting subjects, the titles of which it is not now necessary to announce. The first part is already in our hands, and judging from that, we believe that this will prove one of the most interesting and valuable series of articles yet presented to the dentists of America. The special qualifications of the authors for the task, no one will for a moment dispute. Whatever any one may think concerning the histological views of Dr. Heitzmann, he is admitted by all to be one of the most careful observers now engaged in special study, while in the ability to delineate with his pencil what the microscope reveals to him he stands unrivalled. Certainly, the engravings with which the series of articles will be profusely illustrated are the most exquisite of any that we ever beheld. They are all new and original, and are really valuable as works of art, aside from their technical importance.

Of the qualifications of Dr. Bödecker for writing a work of this kind, it is quite unnecessary for us to speak. The profession, not only of America, but of Europe as well, know him, and they know his untiring zeal and assiduity, and his high attainments in microscopical science, as well as in histological study. More, we need not say. Besides, we are quite sure to get a wigging for even these complimentary allusions, and if we were to say more it is possible that

the modesty of Dr. Bödecker would not permit him to publish the articles at all.

We had expected to present the first part in this number, but some trifling defects in the engravings caught the critical eyes of the authors, and they were sent back for reproduction, and so reached our hands too late for use this month.

REMITTANCES.

Many subscribers are exceedingly careless in making remittances. We not infrequently receive postoffice money orders that are payable only in New York City. Again, orders are sent to our New York office, although made payable in Buffalo. Many orders are sent without any letter of advice or means of identification, other than that contained in the letter of the postmaster at the sending office to the one at the paying office, and we are obliged to depend upon the courtesy of the latter to furnish the name of the subscriber to whom the money should be credited.

Occasionally we notice in the pages of some specially good-natured contemporary an allusion to this journal as being published in Buffalo. It should be thoroughly understood that the *publication* office is in New York. The editorial office is in Buffalo, and it is mailed from that city because it is more convenient to do so, but its business office is in New York, and there is where the majority of its publishers reside. The subscription books are kept in Buffalo, and the prospectus plainly states that all subscription bills should be paid there. Will subscribers please bear in mind, then, that *all money for subscriptions should be sent to Buffalo,* and all checks and money orders for that account should be made payable to the editor at that place. All letters upon other business matters, advertising, etc., should be directed to the New York office. "Paste this notice in your hat for future reference."

AMERICAN DENTAL ASSOCIATION.

The letter of Dr. Field, in this number, will serve to call attention to a matter which will, of course, receive the attention of the Executive Committee of the American Dental Association. We do not think it advisable to forego the meeting of the Association for anything whatever, but some will desire a change of time and place.

BIBLIOGRAPHICAL.

THE MICROSCOPIC STRUCTURE OF A HUMAN TOOTH, TOGETHER WITH SOME UNUSUAL AND IRREGULAR FORMS OF TEETH. By C. H. STOWELL, M. D., F. R. M. S., Professor of Histology and Microscopy in the University of Michigan. Chas. H. Stowell, Publisher, Ann Arbor, Mich. Price, $6.00.

This work is issued in the form of an atlas, with a very beautiful leather case or cover for holding and protecting it. The engravings, many of which are full-page, are beautifully done, and the letter-press is like that of some holiday annual. The full-page plates are: a molar; a longitudinal section of an incisor; a longitudinal section of a lower molar; a transverse section of a bicuspid near the bifurcation of the roots; the blood-vessels of the pulp; a section of the root of an incisor parallel to the dentinal tubuli; two greatly enlarged dentinal fibrils; odontoblasts; sections of enamel, etc. Each plate is accompanied by an explanatory text, and there are directions for the preparation of microscopical sections of the teeth, cuts of dental anomalies, etc., etc.

Prof. Stowell is known as a very competent microscopist, formerly the editor of *The Microscope,* a monthly journal devoted to microscopical science, and as the author of a number of works on pathological subjects. He is a clear and forcible writer, and a careful and painstaking observer. Nevertheless, he will find those who will take issue with him on some of his theories. The dentinal fibrils he represents as direct offshoots from the odontoblast cells. This is not the testimony of some other competent observers. There are other criticisms which might be made, and yet, despite these imperfections, the work is the handsomest one of the kind that has been issued from the American press. We have had it in use in college lectures, and have found it a great convenience. The delicacy of the drawing and the clearness of the engraving make it the most useful work of the kind for those engaged in teaching with which we are acquainted.

C. W. Arnold, Detroit, is the general agent for the United States. Sold by subscription only.

FIELD'S MEDICO-LEGAL GUIDE; for Doctors and Lawyers. By GEO. W. FIELD, LL. B. Albany and New York: Banks & Brothers. 1887.

This is a book which treats of the legal liability of physicians in practice, and of their duties under the law. It embraces the fol-

lowing subjects: Medical Witnesses; Medical Expert Testimony; Insanity and its Legal Relations; Privileged Communications; Abortion; Civil Liability of Medical Men for Malpractice; Criminal Liability for Malpractice; Liability for Practicing in Violation of Statutes; Damages; Compensation; Medical Ethics. In fact, it is a text-book of medical jurisprudence. What between jealous practitioners of medicine and conscienceless practitioners of law, both of whom have a direct interest in fomenting misunderstandings between patient and doctor, it behooves the latter well to know the ground upon which he stands, and to comprehend what are his legal rights and liabilities. Of these this book will thoroughly inform him, and it is not too much then to say that it should be in the hands of every practitioner of the healing art. It has a copious index and a very complete table of cases and decisions, so that it is of value to the lawyer as well as the medical man.

Transactions of the American Dental Association at the Twenty-sixth Annual Session, held at Niagara Falls, N. Y., commencing Aug. 3, 1886. Philadelphia: The S. S. White Dental Manufacturing Co.

It is unnecessary for us to refer particularly to the contents of this annual volume, inasmuch as a full report of the proceedings was published in this journal immediately subsequent to the meeting. It makes a volume a little larger than that of 1885, and quite equal to it in appearance. The publications of the S. S. White Dental Manufacturing Co. are always neat in their typography and binding.

Wear and Tear; or Hints for the Overworked. By S. Weir Mitchell, M. D., LL. D. Fifth edition. Thoroughly revised. Philadelphia: J. P. Lippincott Company. 1887.

Prof. Mitchell is widely known as one of the most competent authorities upon neural diseases that the medical profession of America has in its ranks. Fifteen years ago he issued this little work "as a warning to a restless nation possessed of an energy tempted to its largest uses by unsurpassed opportunities." Since that day hygienic matters have been more carefully observed, and there have been constant improvements in national dress, diet and education, followed by a marked physical change for the better in our development, until the lank, lean and sallow Yankee of a generation ago, is no longer typical of American physique. To this

altered development the writings of Dr. Mitchell have largely contributed, and this book is one of his best.

An Epitome of the Newer Materia Medica. To which is added a property and dose list. Fourth edition. Revised and enlarged. Detroit: Parke, Davis & Company. 1886.

This is a classified list of the properties and qualities of the standard medicinal specialties introduced and manufactured by those reliable pharmacists, Parke, Davis & Co., of Detroit. This firm has succeeded in establishing a reputation for skill in manufacturing and uprightness in dealing, which has made their preparations standard the world around. They prepare many compounds for dentists, and, so far as we know, are the only manufacturing chemists who have taken particular pains to prepare pure drugs especially for their use.

Transactions of the California State Dental Association, at the 13th, 14th, 15th, 16th and 17th Annual Sessions, held in San Francisco.

This makes a voluminous work of over 500 pages, containing some valuable papers and discussions. But it also includes considerable matter which should never have seen the light. It is not edifying to read of the personal quarrels and altercations which sometimes are allowed to take place in society meetings. When dirty linen is to be washed it cannot be done too privately, and we can but wonder that the publication committee should have published to the world the record of the quarrels which resulted in a divided profession in the State of California.

Transactions of the Dental Society of the State of New York. Eighteenth Annual Meeting, held at Albany, May, 1886.

This is not a very voluminous report, as it covers but about fifty pages, a considerable portion of these being occupied by reports of routine business, district societies, etc. What there is, however, is very well edited and printed, but the Dental Society of the great State of New York should make a better showing.

The Management of Pulpless Teeth.

This is a capital little pamphlet, published by the Odontological Society of Chicago as a hand-book of reference for dental practitioners. It contains the essentials of pulp and root treatment in a condensed form, and although there will be a difference of opinion

concerning certain methods, its perusal will be beneficial to any practitioner.

Scavi di Capodimonte: Sopra un Ritratto di Gneo Pompeo Magno. W. Helbig. Roma.

Illustrated Catalogue of the Bausch & Lomb Optical Co. Rochester, N. Y., and New York City.

President's Address, Tenth Annual Meeting of the Detroit Medical and Library Association. By C. J. Lundy, A. M., M. D.

The Doctorate Address. Delivered at the Semi-Centennial Anniversary of the University of Louisville, March 2, 1887. By David W. Yandell, M. D.

Cases in Orthopædic Surgery, By Ap. Morgan Vance, M. D. Reprinted from *The New York Medical Journal.*

Presidential Address. Delivered before the Louisiana State Dental Society. By Geo. J. Friedrichs, M. D., D. D. S.

Courtesy Among Dentists at Professional Meetings. Annual oration delivered before the American Academy of Dental Science, Boston, Nov. 10, 1886. By J. N. Farrar, M. D., D. D. S.

On Certain Mooted Points in Gynecology. By Thomas Addis Emmet, M. D. Reprinted from *The British Medical Journal.*

Researches into the Etiology of Dengue. By J. W. McLaughlin, M. D. Reprinted from the Journal of the American Medical Association.

Follicular Amygdalitis. By A. Jacobi, M. D. Reprinted from *The Medical Record.*

Is Life-force Matter? By J. Hardman, D. D. S. Address before the Muscatine (Ia.) Academy of Science.

Second Annual Report of the Minnesota State Board of Dental Examiners.

Hyperostosis of Roots of Teeth. By Frank Abbott, M. D. Read before the American Dental Association at Niagara Falls. Reprinted from the *Dental Cosmos.*

Some Notes of Recalcification of Human Teeth. Read before Sections F and H in joint session at the Buffalo meeting of the A. A. A. S., August, 1886. By J. R. Walker, D. D. S.

Current News and Opinion.

CORRESPONDENCE.

Editor Independent Practitioner:

Will you kindly allow me a little space in your valuable journal. It is not often that I ask such a favor at your hands, for my extreme interest in and love for my fellow-man act as safeguards to protect your numerous readers from such inflictions. But there is one matter that I think should claim the attention of "the powers that be," and that, too, at the earliest possible moment. I would have preferred that it had been first suggested by some other than myself, but, as "everyone's business is nobody's business," it has been allowed to go this long unnoticed, at least in our dental journals.

As all are aware, the time is now rapidly approaching when the next meeting of the American Dental Association will convene—the first Tuesday in August next, in Asheville, North Carolina. It is also as well known that in the following month (September), the meeting of the International Medical Congress takes place at Washington, D C., in which a Section in Dental and Oral Surgery has been established; a Section, which those who have the matter in charge are bound shall in no way take a second place in the Congress. This invitation from the medical fraternity to take part with, and be one of their number at this time, may well be considered a high honor, no matter whether we may feel as some do, that dentistry and medicine are separate and distinct professions, or that our admission to this Congress is the last throe of parturition in our acknowledged birth into the medical ranks. The fact is an established one, that we have had an invitation which has been *accepted*. The Section has been organized, and in the list of the officers appointed may be found the names of some of the best and brightest men in our profession.

But they alone cannot make the Section a success. Among the rank and file that it is hoped and expected will attend, should be found quite as many, or even more, of the same kind. That the American Dental Association will be largely represented here by its members will hardly admit of cavil or doubt, and now comes the point to which the above is but the prelude. *Will either the American Dental Association or the Dental Section of the Congress be apt to prove a complete success if both are held in the same year, and with so short a time intervening between the meetings?* I think that it can hardly be possible that such can be the case. There are few, very few, who could or would attend both these meetings, whilst many might attend one of them. Asheville is a long way off from the majority of those who attend the Association, and to go there would necessarily be an expensive trip in both time and money. Should any desire to attend both these meetings, they would scarcely have time to get home from one before they would be obliged to turn around and leave for the other.

My suggestion is that to make one success instead of two failures, it would be policy (and the word policy is hardly strong enough to express my meaning) to postpone the American Dental Association meeting for one year. Let the

present officers of the Association hold over until 1888, when the meeting can be held at Asheville, or elsewhere, as the Executive Board may see fit. I am fully satisfied that the Association made a mistake in selecting that place for its next meeting, for I learned from good authority, while on a recent trip south, that there is no accommodation there for such numbers as usually attend the Association. There is a large and fine hotel (only one), kept by an old personal friend of mine, Mr C. N. Southwick. He says that he could make no reduction in rates at that time of the year, and that his house is full, and more than full at that season, so that we could not be accommodated with rooms.

Some have suggested that the meeting of the Association he held the week before the meeting of the Congress. This might be a trifle better than the way matters now stand, but not much. Two weeks in Washington, in August and September, would be a little too much for any others than those who are in training for a hotter climate than that of North Carolina, and I like to believe that I am not one of that number. The expense of two weeks at Washington at that time is also a matter that should be properly considered.

I have now spoken my little piece "right out in meetin'," and I trust that it may prove an entering wedge that shall start a movement that shall have for its end the "greatest good to the greatest number," which sentiment must be my apology for thus trespassing upon your pages.

Truly and fraternally yours,

DETROIT, March 21, 1887. GEO. L. FIELD.

Editor Independent Practitioner:

Will you allow me to request those of your readers who will assist in the Dental and Oral Section of the International Medical Congress to furnish me with an abstract of their papers or the papers themselves at once?

These papers must be in the hands of the secretaries as soon as possible, in order that a definite programme may be arranged and a proper amount of time apportioned for each subject.

E. A. BOGUE, Secretary,
29 East 20th Street, New York City.

Editor Independent Practitioner:

The paper "Metal Plates," which you published in the March PRACTITIONER, has two annoying typographical blunders, which I wish you would please correct.

On page 134, 16th line, for *condition* read *contour*.

Then I am made to say in the same paragraph, "solder one end of the platinum loop," while it is necessary to solder both, unless it is soldered in the middle and the ends turned up, which is quite as well. Simply spurring or etching the surface of the plate will sometimes hold, but is not reliable under much strain

L. P. HASKELL

A NOVEL METHOD OF BLEACHING.

A case of office practice was recently related to me by Dr. A. H. Scofield, of New York, which is as follows :

In the mouth of a young lady was a discolored superior lateral incisor which she desired Dr. Scofield to treat with a view of restoring the color. Opening into the pulp-chamber through an old stopping on the posterior surface, the doctor found a filling in the root, apparently composed of fibres of cotton mixed with oxy-chloride of zinc. It was very compact, and over half an hour was spent in getting it out. After reaching almost to the end of the root, a small piece of the broach broke off and could not be dislodged. With the idea of getting rid of this bit of steel, the root canal was filled with crystals of iodine and sealed with gutta-percha. Next morning the lady appeared in a state of great alarm, for the whole tooth was as black as the iodine itself ! The cavity was quickly opened and the iodine removed. Shreds of cotton wrapped around a broach and dipped in ninety per cent. alcohol were carried and re-carried into the pulp canal probably twenty or more times in as many minutes, then the root was packed with cotton soaked in alcohol, and the cavity again sealed. The following day, and again the day after, the washing process was repeated, each time the tooth looking better, and after this last treatment the lady was requested to allow it to so remain three days. She called at the time appointed, and the tooth was entirely free from discoloration—as clear and white as before it became devitalized.

C. E. Francis.

EIGHTH DISTRICT DENTAL SOCIETY.

The nineteenth annual meeting of the above organization will occur in Buffalo, on Tuesday and Wednesday, April 19th and 20th. The Society will convene at The Genesee at half past ten o'olock A. M. of the first day, and the sessions will be continued throughout that and the next day until the routine of business and the programme as arranged by the business committee are completed.

The business of the Society requiring attention is of more or less interest and importance to the members, and the topics which have been selected for discussion certainly should elicit much valuable thought and profitable comment. The list includes the following subjects :

Dentistry versus Medicine. A review; by H. A. Birdsall, D. D. S.

Neuralgia; by W. C. Hayes, M. D. S.

Restoration of Discolored Teeth; by W. A Barrows, D. D. S.

Soft Gold in Filling Teeth; by B. Rathbun, M. D. S.

Thermometer Tests in Vulcanizing, with practical demonstrations; by G. B. Snow, D. D. S.

Failures; by M. H. Dailey.

The Dividing Line; by F. W. Low.

In addition to this programme, the relating of Incidents of Office Practice, and, if time will permit, Demonstrations in Operative Dentistry, will occupy the attention of the convention.

Every dental practitioner in the district will be welcome and cordially received. It is the aim of the Business Committee to make the meeting as profitable, interesting and attractive as the circumstances will permit.

NEW YORK COLLEGE OF DENTISTRY.

The twenty-first annual commencement of the New York College of Dentistry was held at Chickering Hall, Wednesday evening, March 9, 1887.

GRADUATES.

James Charles Alker.
George Sumner Burt.
Gregorio Santos Benet y Llata, M. D.
Samuel Skinner Brown.
Valentine Edw. Norman Cook.
Thomas Alfred Clawson.
John Harvey Crane.
John Richard Crawford.
John Clayton Downs.
Frank Perry Denny.
George Anthony Dow.
Frank John Eversfield.
William Eybel,
Samuel Hassell, Jr.
Erastus Otis Houghton.
Spencer Cone Hamilton.
Paul William Hiller
Halstead Pell Hodson.
Ira Daniel Horton.
Samuel Porter Hopkins.
Leo Frederic Hugle.
Frank Alfred Katzmeier.
Samuel James Kennedy.
Louis Charles Leroy.
Frank Butler Longnecker.
Edwin Parker Marshall.
Francis Joseph McLaren.
Ferdinand Moith.
Henry Middleton.
Lorenzo Noa.
George Edward Nearing.
Arthur German Rouse.
Franklin Willard Rogers.
Dudley John Russell.
Horace Reynolds.
Felix Edmond San Fuentes, Ph. B
Thomas Howard Stevens.
Charles Harvey Smith.
Harold Slade.
Preston McCready Sharp.
Richard James Secor.
Walter Lincoln Scofield.
Joseph Daniel Sayre.
George Joseph Taylor.
Daniel Webster Valentine.
Walter Woolsey.
Herman Eugen Albert Wichert.
George Mortimer Whitfield.
John Van Pelt Wicks.
Ulysses Grant Woolley.
Leonhardt Eichbery Zuchtmann.

Number of matriculates 193.

ANOTHER NEW DENTAL COLLEGE.

A dental department has been organized in the new Medical College of Buffalo—Niagara University. The faculty is not complete at present, but the following have been appointed:

Dr. A. P. Southwick, professor of Operative Dentistry and Oral Deformities.

Dr. S. Eschelman, professor of Histology and Microscopy.

Dr. George B. Snow, professor of Mechanical Dentistry and Metallurgy.

Dr. F. E. Howard, professor of Operative Dentistry, Hygiene, and Constructive Dentistry.

Dr. C. A. Allen, professor of Materia Medica, Therapeutics and Prosthetic Dentistry.

Dr. Theodore G. Lewis, Secretary and Demonstrator of Dental Art and Mechanism.

OHIO COLLEGE OF DENTAL SURGERY.

The forty-first annual commencement of the Ohio College of Dental Surgery was held in College Hall, Cincinnati, Ohio, Wednesday evening, March 2, 1887.

GRADUATES.

A. W. Black.....Indiana.
L. A. Brown..... Minnesota.
L. E. Custer..... Ohio.
L. E. Day..... .....Ohio.
G. H. Doulton.....California.
W. F. Edmonds.....Kentucky.
J. S. Emery..... Ohio.
J. W. Fisher..... .. Kentucky.
C. H. Green, Jr. .....Indiana.
E. S. Griffis..... .....Ohio.
M. A. Hadcock.....Canada.
B. C. Hinkley..... . Ohio.
T. L. Johnson.....Ohio.
E. S. Keefer.....Ohio.
Miss M. L Leininger.....Ohio.
C. H. Martin..... ...Ohio.
E. S. Mathews.....England.
H. C. Matlack.....Kentucky.
E. J. McCartney.....Pennsylvania.
B. A. McGee .....Indiana.
C. E. Miles.....Ohio.
A. H. Millman. .....Ohio.
B. A. Mosbey.....Indiana.
W. W. Reed.....Ohio.
F. L Rice..... .....Ohio.
J. M. Rutherford.....Ohio.
E. J. Schwartz.....Ohio.
James Silcott.....Ohio.
J. J. Werner... .....Switzerland.

FIFTH DISTRICT DENTAL SOCIETY.

The Fifth District Dental Society of the State of New York will hold its nineteenth annual meeting, at Utica, Tuesday and Wednesday, April 12th and 13th, 1887.

The session will be called to order at 2 P. M. at the St. James, Whitesboro Street, near Genesee.

Applications for membership in the Society should be made on or before the day of meeting, to the Chairman of the Board of Censors, or the Recording Secretary.

The Board of Censors will be in attendance to examine candidates for admission to the Society.

Members of the profession from other societies are cordially invited to be present and take part in the discussions.

C. J. PETERS, Rec. Sec

MINNESOTA HOSPITAL COLLEGE.

The fifth annual commencement of the Dental Department of the Minnesota Hospital College was held in connection with the medical department, in the Hennepin Av. M. E. Church, Minneapolis, Minn., on Friday evening, March 11th, 1887. The address was delivered to the graduates by Prof. John E. Bradley, and the valedictory by James E Cummings, D. D. S.

The number of matriculates for the session was nineteen.

The degree of D. D. S. was conferred on the following graduates by C. H. Hunter, A. M , M. D., President of the Faculty :

Thomas S. Rounce.....Wisconsin.
James E. Cummings.....New York.
Clarence Strachauer.....Minnesota.
Horace B. Ober.....Connecticut.

CONNECTICUT VALLEY DENTAL SOCIETY.

The semi-annual meeting of this society will be held in Montreal, P. Q., July 19th to 22d, inclusive

Prof. G. V. Black, M. D., D. D. S., of Jacksonville, and Prof. Chas. Mayr, of Springfield, Mass., will be the guests of the society, and will present subjects of interest to the profession. Interesting papers have also been promised by Prof. R. R. Andrews, of Cambridge, Dr. James McManus, of Hartford, Dr. Geo. A. Maxfield, of Holyoke, Dr. F. F. Trestler, Dr. Geo. W. Beers and Dr. Geo. H. Weagert, of Montreal.

There will be but one session of the society each day, and that in the morning. The afternoons and evenings will be devoted to excursions, social pleasures, etc., under the charge of a committee of Montreal gentlemen. To say that Dr. Lovejoy is chairman of this committee, is a sufficient guarantee that nothing will be left undone that will add to the comfort and pleasure of all.

GEO. A. MAXFIELD, D. D. S., Sec.

SEVENTH DISTRICT DENTAL SOCIETY.

The Seventh District Dental Society of the State of New York will hold its nineteenth annual convention in Rochester, on Tuesday and Wednesday, April 26th and 27th.

Dentists of the Seventh Judicial District of the State who wish to become members of the society should make application to the Chairman of the Board of Censors, Dr. H. C. Knickerbocker, Seneca Falls, before noon of the first day of the convention.

An interesting programme is being arranged.

Members of the profession are invited to be present.

CHAS. T. HOWARD, Rec. Sec.

224 E. Main St., Rochester, N. Y.

ILLINOIS STATE DENTAL SOCIETY.

The twenty-third annual meeting of the Illinois State Dental Society will be held at Jacksonville, beginning Tuesday, May 10th, and continuing four days.

A full programme of scientific work is arranged for, including a large and instructive clinic.

Dr. Black will give short lectures on micro-organisms, with practical demonstrations of their culture. All dentists will be cordially welcomed.

J. W. WASSALL, Secretary.

DR. W. H. WAITE, of Liverpool, who is well known in America, has been obliged, through failure of sight, to relinquish the active practice of dentistry. His English friends and admirers have determined to present him with a testimonial, in the shape of a purse of gold and an address on vellum. The success of the attempt is assured by the consent of such men as Sir Edwin Saunders, Dentist to the Queen, Sir John Tomes, J. S. Turner, C S. Tomes, Thos. Underwood, Felix Weiss, and others, the best known of English dentists, to serve upon the committee.

Drumine is the name of a new Australian local anæsthetic discovered and described by Dr. John Reid, of Port Germain, South Australia. *Euphorbia Drummondii* is the species, from the milky juice of which the alkaloid Drumine was prepared. Cocaine is known to have a mixed action on sensory and motor nerves, and causes preliminary excitement; while drumine is said to have an almost purely sensory paralyzing effect, and does not cause excitement. Experiments were made on cats and on the observer's tongue. It was injected into the legs of the former animals and caused much dullness, with marked impairment, apparently, of all forms of sensibility. Placed on the tongue, nostrils and hand of the observer, the resulting anæsthesia was most marked. The alkaloid has no action on the pupil, and small doses given internally produce no constitutional effect. It has been employed successfully in subcutaneous injections for sciatica and sprains. The experimentation has, so far, been imperfect and incomplete. We hope soon to have a fuller account of this new alkaloid, and to be able to give further information thereon. The amount injected subcutaneously was four minims of a four per cent. solution. Dr. Reid anticipates a brilliant future for the drug in the domain of nervous and cerebral diseases.—*London Lancet.*

Patient:—"Doctor, I have a very troublesome tooth. I must have something done for it at once."

Young Dentist—"Um! Well, let me see. I cannot give you any time today. Every moment is taken, but—John, hand me my appointment book. Oh, yes; I can give you the day after to-morrow at ten o'clock."

Patient—"But I can't come then, and my tooth troubles me constantly."

Y. D.—"I am very sorry, but that is my first open date. If you cannot come then, I can make it the day after at twelve, by giving you my lunch hour."

Patient—"Well, I suppose that must do then."

Y. D.—(To his office boy after the patient's departure). "John, here is my last quarter. Run out and get some bread and cheese, and we will try and worry through on it. It was necessary that I give her the impression of a rush of business or she would never come back again."

A Mixture of one part of iodoform to ten or fifteen of collodion, if spread upon a neuralgic surface until it attains a thickness of one or two millimetres, is said to be quite effective in the treatment of certain neuralgias. If the first application does not speedily terminate the neuralgia, those who have used this mode of treatment direct that its application should be continued. It seems especially valuable in the relief of neuralgias of the trigeminus. It also seems of value to be applied along the spine, particularly at painful points in what is called spinal irritation. These observations are by no means new, and yet they seem worthy of further consideration.—*Neurological Review.*

R. S. Williams' advertisement, upon the fourth cover page, was received last month at the last moment, and in setting it up several errors were made. They are corrected in this number. By the way, see what an array of different preparations of gold Mr. Williams presents.

Reduced rates have been secured on certain lines of ocean steamers for members and their families who will attend the Medical Congress this summer, as follows :

Inman Line, Liverpool to New York and return, $100,00.
Red Star Line, Antwerp to New York and return, $100.00.
Hamburgh Line. Hamburgh to New York and return. $90.00.
Royal Netherland, Amsterdam to New York and return, $80.00.
The Cunard and White Star Lines decline to make any reductions.

In the filling of pulp canals with liquid gutta-percha, it is necessary that they be kept completely free from saliva and moisture that the material may penetrate to the remotest end. It cannot be introduced into a wet canal. To keep the instrument clean and to prevent the solution from sticking, it may be occasionally dipped in alcohol. If the canal be wiped out with alcohol, the gutta-percha solution will flow better. The gutta-percha points should not be used until the canal is first filled with the gutta-percha solution, as they will not usually penetrate to the foramen.

Dr. C. E. Klotz, of St Catharines, Canada, has devised an excellent implement for cutting sand or emery paper into strips for polishing teeth and fillings. It consists of a circular disk, an inch and a half in diameter, beveled upon one side to a sharp edge, and revolving in one end of a split shaft of iron, like a tracing wheel. It runs beside a straight-edge placed upon the sheet of sand or emery paper, this resting, paper side up, upon a piece of soft wood. It cuts the strips cleanly and evenly, and is self-sharpening.

It is confidently predicted that in five years the magnesium light will be as familiar as is the electric light to day. Its high cost has heretofore been a serious obstacle, but that is said to be now removed by a new German process, which has reduced the price from $40 to $8 a pound, with a prospect of still further cheapening it. A wire of moderate size equals the light of seventy-five stearine candles; the cost is now but little more than gas.—*National Druggist.*

On the planet Jupiter, according to Swedenborg, men live to an age equal to about thirty of our years They become bald at the age of twenty-nine, and knowing this to be the sure precursor of their death within a year, they instantly set about preparing themselves for that event. When we remember how men act on this miserable old earth after they become bald, we don't see how they can ever look at Jupiter without blushing for shame.—*Leavenworth Times.*

The American coins below the denomination of the twenty-five cent piece are the twenty cent piece, the dime, the half-dime, the three cent piece, the two cent piece, and the cent. Using only these, the twenty-five cent piece may be changed into other coinage in 215 different ways.

The Medical Register is a new medical weekly journal, published in Philadelphia, at $3.00 per annum It is edited by Drs. John V. Shoemaker and William C. Wile, both of whom have made their mark in medical literature.

Archives of Dentistry celebrates the beginning of its fourth volume by a change in the editorial management. Dr. W. H. Eames, formerly editor of *The Missouri Dental Journal*, and Dr. C. T. Stockwell, formerly editor of the *New England Dental Journal*, assume the management, with Dr. John G. Harper as associate. Under their vigorous direction we shall expect to see *Archives* become even better than it was before.

P. S. Forty-seven more editors and thirty correspondents are appointed.

A diploma mill was discovered in Lewiston, Me., under the name of the "Druidic University of America, State of Maine Branch." The "University" is an incorporated institution, with a faculty composed of one member, who styles himself "Dr. Samuel York, Druidic Physician." Since the exposure the Maine Legislature has repealed the charter of the Druidic University.

Dr. F. P. Vandenburg, of Buffalo, has been appointed city chemist. The ordinances provide that this officer shall hold the degree of B. S., or its equivalent. The city attorney declared Dr. Vandenburg's M. D. an equivalent, while the opponents of the appointee claim that only Ph. B. and Ph. D. are equivalent to B. S. But Dr. Vandenburg is city chemist all the same.

The bill making an appropriation for the International Medical Congress, which, when it first came before the United States Congress, named $50,000 as the sum to be given, has been passed, with some amendments, one of which cuts the amount down to $10,000.

Parke, Davis & Co.'s advertisement was crowded out of our last issue, but again appears on an inside page. We hope our readers will notice their list of specialties which are specially prepared for dentist's use.

A Physicians' and Dentists' Insurance Association has been incorporated in Illinois. In its executive committee and advisory board may be found the names of some of the best-known dentists of the west.

Technics is a beautifully printed and well edited bi-weekly medical journal, published in Boston, and edited by Drs. Jos. H. and Chas. Everett Warren. Its contents are of an exceedingly practical character.

Oliver Wendell Holmes, during his tour abroad, had conferred upon him honorary degrees as follows: D. C. L., Oxford; Litt. Doc., Cambridge; LL. D., Edinburgh; LL. D., Dublin.

Dr. T. B. Wheeler, of Chicago, proposes to locate in Paris about May 1. He has sold out his home practice, and will turn his face towards the rising instead of the setting sun.

The Dental Record says that Sir John Tomes, F. R. S., is very ill with pleuro-pneumonia, which at his advanced age makes recovery a matter of doubt.

Firm pressure made with the thumbs on the supra-orbital nerves will cut short an attack of hysteria

---

Billroth, the well known surgeon and pathologist, of Vienna, has been elevated to the peerage.

A PHARMACEUTICAL SPECIALTY FOR DENTISTS.

LISTERINE.

FORMULA.—Listerine is the essential antiseptic constituent of Thyme, Eucalyptus, Baptisia, Gaultheria and Mentha Arvensis, in combination. Each fluid drachm also contains two grains of refined and purified Benzo-boracic Acid.

DOSE.—Internally: One teaspoonful three or more times a day (as indicated), either full strength or diluted with water, or in combination with other drugs. As a local application to ulcers, wounds and abscesses, or as a gargle, mouth-wash, inhalant or injection, it can be used ad libitum, diluted as necessary for varied conditions.

Antiseptic, Prophylactic, Deodorant, Non-Toxic, Non-Irritant, Non-Escharotic, Absolutely Safe, Agreeable, Scientific, and Strictly Professional.

LISTERINE is a well-proven antiseptic agent — an antizymotic — especially adapted to internal use and to make and maintain surgical cleanliness — asepsis — in the treatment of all parts of the human body, whether by spray, irrigation, atomization, or simple local application, and therefore characterized by its particular adaptability to the field of preventive medicine — individual prophylaxis,

AND THE REQUIREMENTS OF GENERAL

DENTAL ✣ PRACTICE

LISTERINE IS A

Perfect Tooth and Mouth Wash,

NON-SECRET AND PROFESSIONAL,

And therefore has received the Highest Recognition as the Best General Antiseptic for a

DENTIST'S PRESCRIPTION.

Dentists interested in LISTERINE will please send us their address, and receive by return mail, post-paid, our new and complete pamphlet of 36 quarto pages, embodying

A TABULATED EXHIBIT of the Action of LISTERINE upon Inert Laboratory Compounds;

FULL AND EXHAUSTIVE REPORTS and Clinical Observations from all sources, both Medical and Dental, comfirming the utility of LISTERINE as a general Antiseptic for both Internal and External use; and particularly

MICROSCOPIC OBSERVATIONS, showing the comparative value and availability of various Antiseptics in the treatment of Diseases of the Oral Cavity, by W. D. Miller, A, B., Ph. D., D. D. S., Prof. of Operative and Clinical Dentistry, University of Berlin, from whose deductions LISTERINE appears to be the most acceptable prophylactic for the care and preservation of the teeth.

LAMBERT PHARMACAL COMPANY,

116 OLIVE STREET, ST. LOUIS, MO.

ANOTHER

"NEW DEPARTURE."

Educate Your Patients! — A SENSITIVE POINT will do this, if read by your patrons, thereby saving you valuable time and great annoyance. It is presented after thirty years' successful dental practice, to introduce a subject too much neglected by our profession. It answers questions, makes suggestions, and gives advice to our patients on matters relating to the teeth. Send 10 cts. for the book—32 pages—and terms; 1,000 copies, neatly printed in your own name, free. *It will pay you to investigate this subject.* CHAS. HOUGHTON, Dentist, Batavia, N. Y.

We continue to act as solicitors for patents, caveats, trade-marks, copyrights, etc. for the United States, and to obtain patents in Canada, England, France, Germany, and all other countries.

Thirty-six years' practice. No charge for examination of models or drawings. Advice by mail free.

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HIGHEST AWARDS OF MEDALS AND DIPLOMAS OVER ALL AMERICAN AND FOREIGN COMPETITORS,

AT MORE THAN THIRTY

INTERNATIONAL, STATE AND LOCAL EXPOSITIONS.

SEABURY & JOHNSON,

Beg to call attention to the articles manufactured by them especially adapted for dental use.

OUR DENTAL LINT

Is made with great care, by perfected machinery, of which process WE ARE THE SOLE OWNERS AND OPERATORS IN THIS COUNTRY, and our product is guaranteed to be fluffier and lighter than any other make.

DENTAL ABSORBENT COTTONS.

Borated, Salicylated, Styptic and all other Medications. Perfect quality highly absorbent, superior to all competitive brands.

RUBBER DAMS, LIGHT and HEAVY

Order of dealers or directly from us.

SEABURY & JOHNSON,

21 Platt Street. NEW YORK.

Proprietors of the SEABURY PHARMACAL LABORATORIES,

Manufacturers of India-Rubber Pharmacopœial and Surgical Plasters, Antiseptic Dressings and Absorbents, Bandages, Oiled Silk and Muslin, and Surgical Dressings of all Descriptions.

GEO. J. SEABURY, President. J. M. PETERS, Treasurer. ROBERT J. SEABURY, Secretary.

CLAUDIUS ASH & SONS,

LONDON, ENGLAND.

We have established an office for the sale of our

MINERAL TEETH

Dental Rubbers, Forceps, Etc.,

AT

No. 30 East 14th Street,

NEW YORK CITY,

And have in stock a full assortment of

FLAT TEETH for Metal Plate, and Crown and Bridge Work.
VULCANITE TEETH.
TUBE TEETH for Metal Plate and Pivoting.
Pinless, Dovetail and Open Crown for Vulcanite.

We desire to draw attention to the following: Our Improved Pink, New Pink, Whalebone, Flexible Base, Dark Elastic, Orange, Dark Brown and Improved Black Rubbers.

Phosphate and Rock Cement.
Sullivan's and Stewart's Copper Amalgam.
Ladmore Brunton Clamp, Key and Matrices.
Baldock's Improved Nerve Paste.
Stubb's Separating Files and Tools.
Jacob's Gutta Percha Stopping.
Steuts' Modelling Composition, Amalgams, Forceps, Pivoting and Filling Instruments, Impression Trays, Barbed Nerve Extractors, Corundum, etc., etc.

Catalogues mailed on application.

Our MINERAL TEETH

Possess the following desirable qualities.

1. NATURAL FORMS—

   In great variety and of various sizes and lengths.

2. COLOURS—

   Ranging from very light to very dark shades, and closely resembling the various colours of the human teeth.

3. TEXTURE—

   Non-porous, so that they can be *ground* and *polished* to suit particular cases, therefore being well adapted for Bridge work.

4. STRENGTH—

   Possessing unusual strength on account of their fine and close texture.

5. SOLDERING—

   Bearing in an extraordinary manner the sudden transitions of temperature, so that they can be *soldered without cracking*. Our representative received corroborative evidence of this fact from many of the most prominent dentists in the United States.

CAUTION—

Some unprincipled dealers in the United States are selling imitations of our pinless teeth as our make. Dentists can easily detect the imitation, from the very rough finish and inferior coloring of these teeth.

Our DENTAL RUBBERS

Are much esteemed for their *purity, strength and solidity.*

Professor Attfield, F. C. S., who has put our Dental Rubbers to severe tests in order to settle the question of such a possibility, thus concludes his exhaustive report upon them: "I am of opinion that the vulcanite teeth-plates made from your Rubbers are practically unaffected by saliva or by any substance which ever gains access to the mouth; and, in short, that the pink and red vulcanite gums andpalates are absolutely harmless."

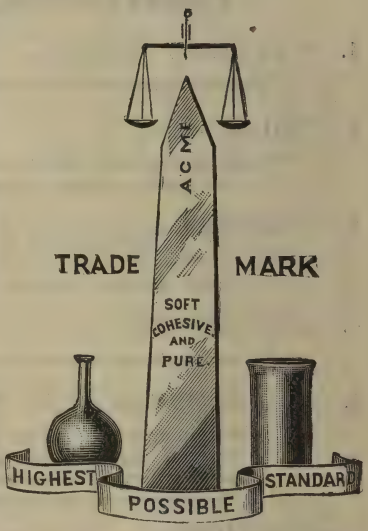
CLAUDIUS ASH & SONS.

30 East 14th St., New York City.

"ACME GOLD FOIL."

ABSOLUTELY PURE GOLD.

After twenty years as a practical Gold Beater and Refiner of Gold and Silver, and manufacturer of Gold Leaf in various shades and qualities, I am in position to state that there is no purer quality of Gold Foil manufactured, no matter how great the reputation of others, whether domestic or foreign.



Cylinders $30.00 per oz.; ⅛ oz. $3.75. Acme Cylinders are made from our Acme Soft Foil, which is absolutely pure. The name Acme is given to this Gold for the reason that it is as pure as it is possible for chemical agencies or human hands to produce.

Acme Soft Foil, $28.00 per oz.; $3.50 per book of ⅛ oz.

Crystal Surface, or Corrugated Foil, softest working Foil known, $28.00 per oz.; $3.50 per book of ⅛ oz.

Acme Folded Foil, a convenient substitute for Cohesive Foil, easy to handle and anneal $28.00 per oz.; $3.50 per ⅛ oz.

Appended a few of numerous Testimonials:

BROOKLYN, N. Y., Nov. 21, 1885.

I think Henry's Gold the finest, *without any exception*, I ever used.

FRANK P. ABBOTT.

ATHENÆUM, BROOKLYN, N. Y., Sept. 10, 1875.

MR. HENRY,

Will you have your agent call on me. I had a book (⅛ oz.) of your gold a long time since, and when the agent last called I told him I didn't know whether I liked it or not. Since then I found a package unopened, have used it and like it much.

Truly,

A. N. CHAPMAN.

NEW YORK, Aug. 22, 1885.

MR. T. J. HENRY,

Dear Sir,—Your agent left one book of your Corrugated Gold Foil for trial, and I would not be doing you justice without saying that it works equal to any Gold I have ever used. Please send agent with a further supply and oblige,

Yours, respectfully,

V. VAN VLECK, M. D.
284 6th Ave.

One of the many testimonials we receive almost every hour in the day:

NEW YORK, Sat., Nov 14, 1885.

Dear Sir,—Please send your man with Foil.

Yours truly,

N. M. BECKWITH,
21 West 37th St.

Gold will be sent free of cost to any part of the United States or Canada. Remittances must accompany all orders.

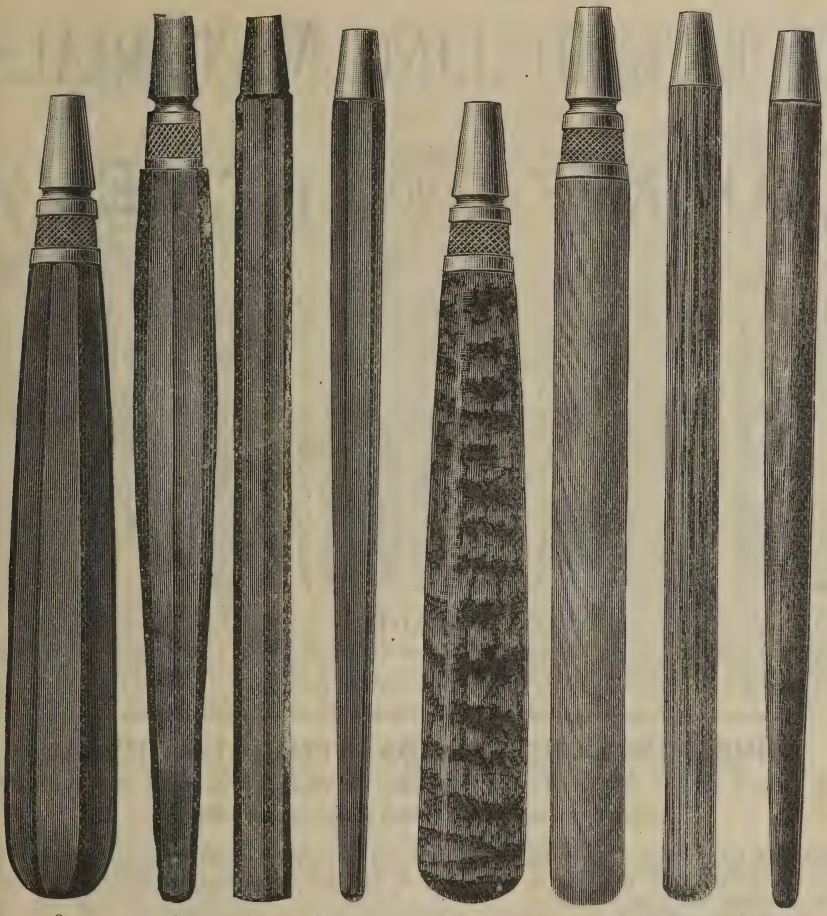
ADDRESS,

T. J. HENRY, GOLD LEAF FACTORY,
No. 16 Centre St., N. Y.

ESTABLISHED 1875.

P. S.—Dental Depots supplied at a liberal discount. Special Brands of Gold manufactured according to orders.

NEW LINE HARD WOOD HANDLES.



8 9 — Per doz. $5.00.

10 11 — Per doz. $3.00.

12 13 — Per doz. $5.00.

14 15 — Per doz. $3.00

☞CUTS EXACT SIZE OF HANDLES.☜

We desire to call your attention to the beautiful line of HARD WOOD HANDLES.

SNAKE WOOD, OLIVE, TULIP, COCABOLA, EBONY, ROSEWOOD.

After repeated demands for such Handles as here illustrated and described, and being so thoroughly satisfied of the numerous advantages as named to us, we have taken advantage of our first opportunity to produce them, and are now prepared to supply the full line.

After consulting many of the dentists as to the best sizes and shapes, we are now satisfied that the Handles as illustrated will meet every demand. We have selected distinctive colors of the fine grain and beautiful woods, and with the (6) different shades or colors of woods and the (8) sizes and styles of Handles, enables one to make up a combination of 4 doz. Handles (no two alike), thus the instrument desired when operating can readily be selected.

☞We will keep in stock all the above Handles to take the regular Cone Socket Points. In addition to this we will keep in stock. Handles Nos. 8, 9, 12, 13 to take the Snow & Lewis Plugger Points.

When ordering please state whether you desire them for Cone Socket or Snow & Lewis' Points. Also when ordering wood Handles, state numbers of Handles and kind of wood desired. Soliciting your orders for the above, either through your dealer, or direct, we are,

Yours respectfully,

AMERICAN DENTAL MANUFACTURING CO.,

Broadway, cor. 37th Street,

WRITE FOR CATALOGUE. NEW YORK.

CAULK'S FILLING MATERIALS.

ESTABLISHED 1877.

FOUR COLORS and LIQUID.—Gray, Yellow, Medium and Light, - - $2.00 per Package.
TWO COLORS and LIQUID.—Gray and Yellow, - - - 1.50 " "
ONE COLOR and LIQUID.—Gray, Yellow, Medium, Light or Gum, - - 1.00 " "

THIS COMPOUND STANDS WITHOUT A RIVAL.

From Seven to Ten Years' Test by Leading Dentists Throughout the World has Proved it to be All That Has Been Claimed for it.

Diamond Cement should not be classed with the so-called oxy-phosphates, as is often the case—the materials of which it is composed and its process of manufacture being entirely different—hence its SUPERIORITY.

It will Harden in Water or Saliva. The liquid does not crystallize.

Two or more colors blended together (in mixing) will produce any shade desired. All bottles are lettered "*Caulk's Diamond Cement.*"

As Now Made, is Slower in Setting, giving ample time for the slowest operator to manipulate it properly.

Gum Color Cement for making tight joints in vulcanite work. Diamond Cement has been used for this purpose for many years, and in order to supply the recent demand we are making a *better color*, and an article more suitable for this purpose than can generally be found in the market. Mix thin, drop into the joints, and pack at once.

The use of cements is not sufficiently inculcated. We use it as a rule when patients are not able to pay for large gold fillings, as a matter of economy, but the fact is it saves teeth that gold would not save. I have a case in mind. Teeth which were decaying rapidly *FIVE YEARS AGO*, I filled with Caulk's Diamond Cement, and they are now in good condition.—Dr. E. S. Chisholm, in *Transactions* of the *Alabama Dental Association for* 1886.

THE UNIVERSAL VERDICT IS THAT CAULK'S DIAMOND CEMENT IS THE BEST. A FAIR TRIAL WILL CONVINCE YOU.

CAULK'S PAR-EXCELLENCE ALLOY

This GOLD AND PLATINA ALLOY is manufactured on a NEW PRINCIPLE.
None better made. Saves Teeth where others fail.

With one exception, we were the first to manufacture Amalgam containing Gold and Platinum, although we did not call it such, simply our trade name, Par-Excellence Alloy, which fully expresses the superiority of this combination of metals over others. It is the result of a long series of experiments, and has been in constant use for nearly ten years. By our new method of manufacture there is no **guess work,** the molecular change is controlled, making each and every ingot always and absolutely alike in its properties.

Price in ⅛, ½ and I ounce packages, per ounce, $3.00; 2 ounces, $5.00.

CAULK'S WHITE ALLOY

Has been greatly improved. Costing more to produce it.
There is NOTHING EQUAL or Superior to it.

Is of a peculiar grayish-white color. When amalgamated in the hand it works with a soft and velvety feeling. It is very DENSE, and so malleable that it can be malleted with the greatest ease. Has been highly recommended in Combination Fillings of Gold and Amalgam. When properly manipulated with our PURIFIED MERCURY it will retain its color under all circumstances.

Price, ¼, ½, and I ounce Packages, per ounce, $4.00; 2 ounces, $7.00.

CAULK'S DIAMOND POINT STOPPING

AND GUTTA-PERCHA POINTS FOR FILLING ROOTS.

This form of gutta-percha, having been in the market for TEN years, has stood the greatest test of all—that of time. It is regarded as the best preparation of its kind for filling teeth in the world.

The Stopping is put up in SEALED ENVELOPES, and the Pellets, Cylinders and Points in SEALED BOXES, each bearing a *fac-simile* of our signature.

Price, in ⅛, ¼, ½ and I ounce packages, per ounce, (reduced to) $2.00.

We make a specialty of manufacturing these materials for filling teeth.

Over Fifteen Thousand (15,000) Dentists are using these Materials throughout the civilized World. What better evidence do you wish of their Superiority and Excellence?

Publisher Caulk's Dental Annual for 1886-'87, No. V. Price, 50 Cents.

L. D. CAULK, Manufacturer and Proprietor, CAMDEN, DEL.

SOLD AT ALL DENTAL DEPOTS.

COGSWELL'S
Disk Carrier and Guard

MADE BY

CODMAN & SHURTLEFF,

167 Tremont Street, BOSTON, MASS.

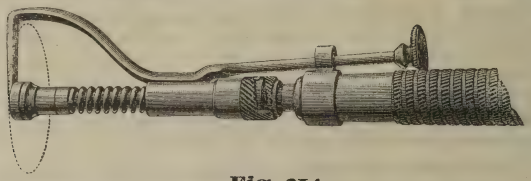


Fig. 214.

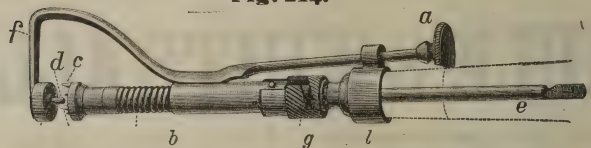


Fig. 214 A. **Patented Feb. 10, 1885.**

This invention will be found indispensable by every dentist who values time, as it will enable him to attach the much used Disk to the Engine Mandrel in a small fraction of the time required by other methods.

It is represented in the figures as connected to the Hand-piece. In Figure 214 the holding device is represented as closed, the outline of Disk being indicated by circle of broken lines. In Figure 214 A, it is shown as opened by slight pressure of the thumb or finger against the knob *a*, ready to receive the disk. Upon relaxing this pressure the spring *b* closes upon the disk, which is centered upon *d*, perforated by four hardened steel points, *cc*, and thus securely held ready for rotation. The carrier is attached to the Hand-piece by insertion of the Mandrel *e*. A friction ferule *l* overcomes slight tendency of bracket *f* to rotate, and enables the operator to retain the guard opposite that portion of the disk where it will most effectually guard cheek, tongue, or other part from injury, or, prevent interference with rubber dam. At *g* is a locking sleeve, employed only when in the use of stiff disks there is a tendency to overcome pressure of spring *b*, and permit loosening of disk.

The Carrier will receive disks of ⅞ inch diameter down to ⅜ or even smaller. It may be rotated in either direction without loosening the disk, as occurs with the ordinary screw-held disk.

PRICE, $2.50.

We are prepared to supply the Disk Carrier and Guard to fit the S. S. W. Hand-pieces, Nos. 5 and 6, Hodge's and Bonwill's Improved, at this price. Other Hand-pieces, if sent us, will be fitted to order at the same price, or at a moderate additional charge. ***In ordering, state what Hand-piece is used.***

MESSRS. CODMAN & SHURTLEFF: BOSTON.

Gentlemen,—The new Disk Carrier, with guard, which I have fully tested, is very satisfactory in all respects. I prefer it to any other pattern now in the market.

ISAAC J. WETHERBEE, D. D. S., *Pres. B. D. C.*

From J. B. Coolidge, M.D., D.D.S., Professor of Clinical Dentistry, in Boston Dental College.

MESSRS. CODMAN & SHURTLEFF:—

The new Disk Carrier which you sent me is the best. It will very soon save its cost in the time required for changing the disk. The guard will be found of great use in protecting the cheek, tongue, and rubber dam from the action of the disk. I would recommend it to every Dentist.

J. B. COOLIDGE.

From J. A. Watling, D.D.S., Professor of Operative Dentistry, Michigan University.

MESSRS. CODMAN & SHURTLEFF,

167 Tremont Street, Boston, Mass.:

Dear Sirs,—Your Disk Carrier received. After several careful trials, I feel justified in recommending it to the profession as a very useful and valuable addition to a dentist's outfit.

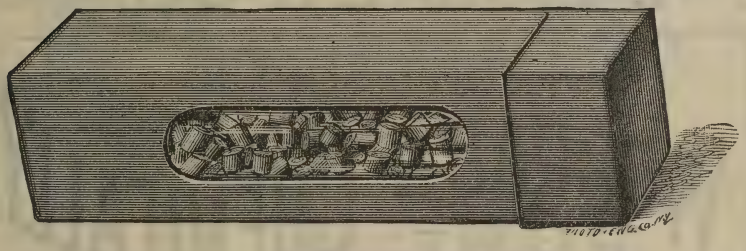
It is one of the best that I ever used. Is readily applied to the engine, and to replace the old disk with a new one requires but a few seconds.

The protector, while holding the disk firmly in place and being all that is necessary for the prevention of injury to the mouth, does not shut off the view of the filling to be finished.

It is indeed an instrument to be desired by all careful practitioners.

1-6-an-1 Respectfully, J. A. WATLING, D. D. S.

EXTRA PLIABLE DECIMAL GOLD ROLLS.



(This Engraving represents a Phial of size 1 of the above designated Gold, inclosed in a Box.)

Gold Foil and Gold Rolls, per 1-10 ounce,	$3.00.	Per ounce, $28.00
Extra Pliable Decimal Gold Rolls, per 1-10 ounce,	3.50.	Per ½ ounce, 17.00
Untrimmed Foil, per 1-5 ounce book,		5.50
Ideal Cement, per package, with Pigments,		1.00
Rowan's Ideal Alloy, No. 1, per 1 oz. $5.00, 2 ozs. $9.00, 4 ozs.		16.00
Rowan's Ideal Alloy, No. 2, per 1 oz. $3.00, 2 ozs. $5.50, 4 ozs.,		10.00
Tin Foil (our make), very tough, per book,		.50

Try some of our "Ideal" Cement Filling and "Ideal" Alloy.

Appended are testimonials for our preparations of Gold from well-known gentlemen:

I have used the Rolled Gold of Edward Rowan & Co., and like it very much. I prefer high numbers—30, 60 and 120—for facility of adaptation to walls of cavities, capacity to bear high annealing and making solid work, I know no superior make.

W. H. ATKINSON,
October 23, 1882. 41 E. 9th Street, N. Y.

271 N. Eutaw Street. BALTIMORE, Md., June 5th, 1883.

GENTLEMEN—I have used nearly all of the last ounce of your "Extra Cohesive" Decimal Gold Foil No. 4, and it affords me pleasure to inform you that it has *proved* to be a *first-class article* in every respect. It is *cohesive* and *tough* in the *highest degree*, yet possessing *less harshness* than is usually found in cohesive foils. I cheerfully thus refer to it, and so long as you continue to make such foil, I want nothing better. Very respectfully,

JAS. H. HARRIS, M. D., D. D. S.

No. 100 Boylston Street. BOSTON, MASS., June 30, 1883.

Sirs—I have used your Rolled Gold for several years. When I wish to use *cohesive* gold, I prefer your No. 30 Rolled to any gold with which I am familiar. It is very tough, soft and cohesive. In short, pleasant and easy to work, and makes a compact, even and finished filling. Yours truly,

L. D. SHEPARD.
Late Professor of Operative Dentistry, Harvard University.

S. H. GUILFORD, A.M., D.D.S., (*Professor of Operative and Prosthetic Dentistry, Phila. Dental College,*) has permitted us to state that he uses and recommends our "Gold Rolls."

DR. H. J. MCKELLOPS, of St. Louis, writes us, under date September 16, 1884, "You may use my name in connection with your Gold with pleasure."

H. C. REGISTER, M. D., D. D. S., of Philadelphia, writes us, "You are permitted to use my name in recommending your Gold, as second to none in the world!"

CHAS. L. STEEL, M. D., D. D. S., of Richmond, Va. (*Demonstrator Operative Dentistry, University of Maryland*). DEAR SIRS—Your last ounce of Gold duly received, and, as usual, works superbly. I have used many makes of Cohesive Foil, but for some time past have confined myself to yours exclusively, as I find none other so near perfection.

A. H. FULLER, M. D., D. D. S. (*Professor of Operative Dentistry, Missouri Dental College*). Should you so desire you may state that I have been using your Gold for the past year or more, and find it first-class in every respect. Shall send you an order in a few days for more.

WM. CARR, M. D., 35 West 46th Street, New York, permits us to state that he endorses our Golds. He uses Nos. 3 and 4 soft; No. 60 Rolled; and Gold Rolls.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

EDWARD ROWAN & CO.

No. 1048 Third Avenue, S. W. Corner 62d Street, New York.

REFERENCES FURNISHED ON REQUEST.

C. A. TIMME & CO. Importers of

CASH MUST ACCOMPANY THE ORDER.

COHESIVE, SOFT No

WOLRAB'S PURE CHEMICALLY

GOLD FOIL

C. A. TIMME & CO.

IMPORTERS of DENTISTS SPECIALTIES

SOLE AGENTS FOR THE U. S.

190 HUDSON ST. HOBOKEN N. J.

ORDER MUST ACCOMPANY THE CASH.

Foil, $4.00 per ⅛ oz., $15.00 per ½ oz., $30.00 per 1 oz.

On orders of two ounces and more at a time a reduction of 50 cents per ounce will be given.

This gold is made in reference to the HERBST method of filling teeth with the engine. It has also proven a very desirable article for the *mallet* and *hand-pressure*.

We claim it to be superior to any other make for its peculiar *softness*. It easily adapts itself to the walls of the cavity, and when properly manipulated it makes a *solid* and *cohesive filling*. If it is to be used cohesively, a slight *warming over* the flame will have the desired result.

Very good reports have been received from prominent practitioners.

Timme's Imported German Phosphate Cement, per box, $1.00.

D 1/8 oz

CELEBRATED

WOLRAB'S GERMAN GOLD.

№ 0 1 2 3 4

CHEMICALLY PURE

for the HERBST METHOD

MADE EXPRESSLY of filling TEETH

C. A. TIMME & Co. IMPORTERS OF DENTISTS SPECIALTIES

Hudson St. HOBOKEN N.J.

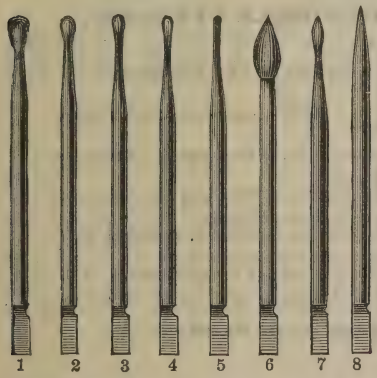
SOLE AGENTS FOR THE U.S.

Cylinders, $4.50 per ⅛ oz., $17.00 per ½ oz., $34.00 per 1 oz.

CASH MUST ACCOMPANY THE ORDER.

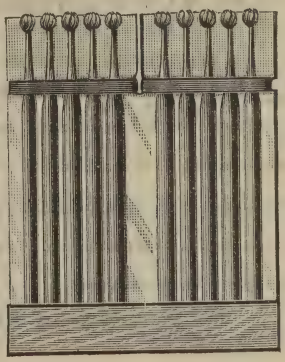
STOCK REGULATED FOR LABEL FOR CYLINDERS.

Instruments for the Herbst Method



Made of Agate, per set, - - - $10.00
The same made of Steel, as shown in the cut, per set, - - - - - 4.00

Imported Burs, Stone Cut.



Unequaled in temper, arranged on wooden cards, per card of ten, - - - $ 3.00
In boxes of ten cards, - - - 25.00

2-5-AN-2.

HARDMAN'S WHITE ALLOY

Takes the place of gold for filling front, or any teeth.

PRICE, $3.00 PER OZ.

Test for Color—Place a button of Amalgam, that has one surface polished, into a solution of 40 to 60 grs. of sulphuret of Pottassa in 1 oz. of water. Let remain 24 to 48 hours.

Test for Leakage—Fill a small glass test tube with it, just as you would a cavity in a tooth, and drop it into a bottle containing an alcoholic solution of red aniline.

This Alloy Stands These, and Any Other Tests Deemed Requisite to Perfection.

HARDMAN'S SUPERIOR AMALGAM

Surpasses all others for strength and density of texture. Use it for Crown Work, in Molars, &c.

PRICE REDUCED TO $4.00 PER OZ.

Large discounts on both of these in quantities.

MADE AND FOR SALE BY

J. HARDMAN, MUSCATINE, IOWA.

If your depot does not keep them send to the proprietor for them.

8-4-AN-¾

DIBBLE'S WHITE AMALGAM

A Gold Alloy. $5.00 per ounce.

Manufactured only by

W. H. DIBBLE, MIDDLETOWN, CT.

For sale by S. S. WHITE DENTAL M'F'G CO., or sent by mail by the manufacturer.

ALSO MANUFACTURER OF THE DIBBLE PLUGGER.

THE FOLLOWING TESTIMONIALS ARE RESPECTFULLY OFFERED.

Dibble at present is ahead on Amalgam.
NEW YORK, Jan. 9, 1883. J. W. CLOWES, 667 Fifth Avenue.

I believe it to be the best article of the kind in use.
W. H. DWINELLE, M. D., 27 West 34th St., New York.

I take pleasure in recommending it as the best now known.
GEORGE H. PERINE, 74 West 50th St., New York.

Have used it three years, and it has given me better results than any other.
O. E. HILL, M. D. S., 160 Clinton St., Brooklyn, N. Y.

I am satisfied it is the best in use. I can recommend it to the profession.
C. E. GRAVES, 393 Jay Street, Brooklyn, N. Y.

It is the best I have ever used. MILES H. DODGE, 20 E. 33d St., New York.

$5.00 per oz. or 3 oz. for $12.50. Sent by Mail.

3-5-AN-½.

E. KEARSING'S

COHESIVE AND SOFT

GOLD FOIL,

Used by many of the prominent dentists in this country and abroad.

——ALSO EXTRA FINE——

TIN FOIL AND AMALGAM.

MR. E. KEARSING, *Dear Sir:*—After having used your gold foil for five years, I can say that it gives me better satisfaction than any other that I have used. For restorations and all work where I greatly depend upon cohesive qualities it never fails.

Yours truly, A. H. SCOFIELD, D. D. S.,
113 W. 47th St., New York City.
September 8, 1884.

MR. E. KEARSING:—After using your gold foil about five years with great satisfaction, I feel that I cannot get along without it. It is especially valuable for small cavities, and for fine work in approximal cases. Respectfully, J. N. FARRAR.

MR. E. KEARSING, *Dear Sir:*—After having used your gold, both soft and cohesive, for nearly five years, I find it has given me entire satisfaction in all cases.

Yours truly, J. BOND LITTIG, D. D. S.,
113 W. 47th St., New York City
September 13, 1884.

Dear Sir:—After using your gold foil almost uninterruptedly for the last six years, I have no hesitation in stating that it stands without a rival for performing what are known as contour operations. It answers equally well for small fillings unannealed when properly manipulated. Very truly, H. C. LONGNECKER.
FLUSHING, L. I., Sept. 11, 1884.

E. KEARSING, ESQ., *Dear Sir:*—In reply to your inquiry about my opinion of the merits of your Gold Foil, I can say frankly, after having had over thirty years' acquaintance with it, that it works and wears beautifully. No gold foil ever had a better endorsement than that given your gold foil by the late Dr. Marshall H. Webb, whose elegant operations live to do honor to him and reward you. Your cohesive foil, No. 4, folded into 32 or 48, is daily giving me great satisfaction, being uniformly impacted from beginning to end of the filling with the Electric Plugger. Yours very truly, E. PARMLY BROWN.

101 HOYT STREET,

P. O. Box 182. BROOKLYN, N. Y.

7-4-AN-½

"THE OLD RELIABLE."

LAWRENCE'S AMALGAM.

RES NON VERBA
A. L. LAWRENCE
TRADE MARK

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the Trade should be addressed accordingly.

Price, $3.00 per Ounce. For sale at all respectable Dental Depots.

Manufactured only by

AMBROSE LAWRENCE, M. D., 476 Columbus Avenue, Boston, Mass.

IC-4-AN ¼

The Wilmington Dental Manufacturing Co.

MANUFACTURERS OF

ARTIFICIAL TEETH,

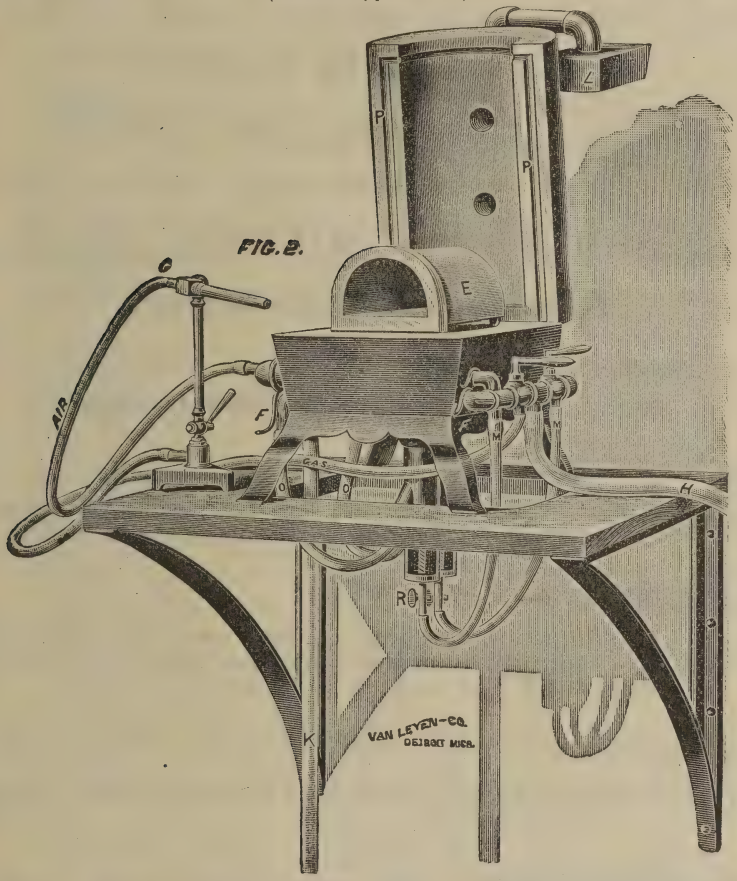
Nos. 1010 and 1012 KING STREET,

WILMINGTON, DELAWARE.

Having been justly recognized as manufacturing a very SUPERIOR TOOTH at a very moderate PRICE, they now avail themselves of this medium by which they hope to present their merits to the Dental Profession. They have now perfected their designs as to the character of their MODELS, and have fully succeeded in being able to present to the Dentist an opportunity to select a SHADE of enamel which will harmonize and correlate with that of the natural tooth.

☞ *For sale by Dental Dealers everywhere. Send for price list.*

DR. C. H. LAND'S
COMPOUND
GAS OR GASOLINE FURNACE
(Patent Applied for.)



Size No. 1 especially adapted for all kinds of muffle work, crucible work, blow-pipe work, forging and brazing. It is the most complete furnace ever devised for the chemist, assayer, jeweler, dentist and metallurgist Continuous gum and porcelain can be baked in from 15 to 20 minutes in the most perfect manner and with unerring precision. Send for descriptive circular.

Instructions—In order to enable those who contemplate using gas furnaces and to comprehend their great superiority over coal or coke fires my laboratory will be open free to all, and with those who desire a special course in continuous gum work, enamel metallic coatings and enamel fillings, favorable arrangements can be made. A visit to my laboratory will be of the utmost value. Here furnaces are operated by both foot and steam power, using either gas or gasoline. Thus practical working can be seen to the best advantage.

Address, C. H. LAND, 264 Woodward Ave., Detroit, Mich.

10-6-AN-1.

GEO. E. HODGE, President. AUG. WEBER, Secretary.

THE

New York Dental Manufacturing Company

1300 BROADWAY, COR. 34th STREET,

NEW YORK CITY.

C. ASH & SONS' MINERAL TEETH

Possess the following desirable qualities:

1. *NATURAL FORMS*—

   In great variety and of various sizes and lengths.

2. *COLOURS*—

   Ranging from very light to very dark shades, and closely resembling the various colours of the human teeth.

3. *TEXTURE*—

   Non-porous, so that they can be ground and polished to suit particular cases, therefore being well adapted for Bridge work.

4. *STRENGTH*—

   Possessing unusual strength on account of their fine and close texture.

5. *SOLDERING*—

   Bearing in an extraordinary manner the sudden transitions of temperature so that they can be soldered without cracking.

We especially invite comparison to each of these points enumerated above. There are no teeth in the world made to compare with them

THE "DIATORIC" TEETH

without pins, are superior to any cheap tooth made in this country.

The very high reputation obtained all over Europe and other parts of the world, by the Messrs. CLAUDIUS ASH & SONS, for the superior excellence of their

Mineral Teeth and Dental Rubbers,

seems to be rapidly coming to them in this country.

We have the largest stock of these goods of any depot in the United States, and are prepared to give particular attention to filling orders, and to the selection of teeth for special cases.

Hand Piece for Dental Engine, - - - - $10.00.
Right Angle Attachment, - - - - - - 6.00.

Stone Cut Burs, per Doz.

000 to 8	$3.00
9 to 11	4.20
12 to 14	4.80

Finishing, per Doz.

3 to 8..50 c. each	$6.00
9 to 11..60 "	7.20
12 to 14..75 "	9.00

Drills, per Doz.

00 to 8	$2.00
0 to 5, flexible	4.00

Keen-edge Burs, per Doz.

000 to 8	$2.25
9 to 11	3.60
12 to 14	4.20

Finishing, per Doz.

3 to 8..40 c. each	$6.00
9 to 11..60 "	7.20
12 to 14..75 "	9.00

Flexible Burs, per Doz.

1 to 5...40 c. each	$4.80
Morey Drills, 50 c. each	6.00

We shall soon issue a card for a new variety cavity cutting stone cut bur.

THE MORRISON DENTAL CHAIR.

Reissue May 15, 1877. English Patent Dec. 7, 1867.

PRICES.

In Best Quality Green or Maroon Plush or Plain Morocco	$130 0
In Real Morocco, Embossed	140 0
In Finest Quality Green or Maroon Plush, puffed and trimmed with Plush	150 0
Spittoon Attachment, extra	4 0

BOXING FREE.

STUDENT'S MORRISON CHAIR.

To meet an often-expressed want of a first-class chair at a low price, the Student' Morrison was brought out. It is, in all respects, equal to the regular Morrison chai except that it is upholstered in a corded material, instead of plush. It presents a ver attractive appearance, and will wear nearly as well as plush.

PRICE—In Corded Upholstery $105 0

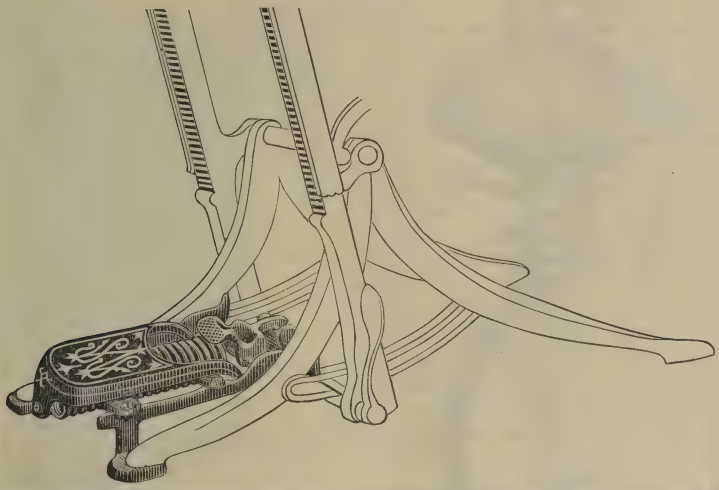
We supply either style of the Morrison Chair, with our without Casters. Whe ordered with Casters, the price is $10.00 extra.

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn

BALANCE-SPRING ATTACHMENT.

(Patent applied for.)



This Attachment supplies the only lack of the Morrison Chair as sold for many years and used by thousands of dentists.—an easy tilting movement. It consists of a strong spiral Spring operating a latch which engages with a rod attached to the connecting-bar at the bottom of the movable uprights. The attachment is made by means of a clamp, without interfering with the mechanism which locks the chair. In tilting the chair and returning it to the upright position, the Spring counterbalances the weight of the patient, thereby lightening the labor of the operator. The desirability of such a labor-saver will be specially appreciated by those who have had occasion to handle a heavy patient in this chair. Its advantages are most apparent when the chair is at the usual height for operating. The frame which supports the spring is made to form a convenient foot-rest for the operator. The latch has a toe-piece by means of which it may be readily disengaged, thus dispensing with the use of the Spring when desirable.

The Balance-spring Attachment can be applied to any Morrison Chair in a few moments. Made of iron, japanned and gilded.

Price..... ...$12 00

CHAIR OIL.

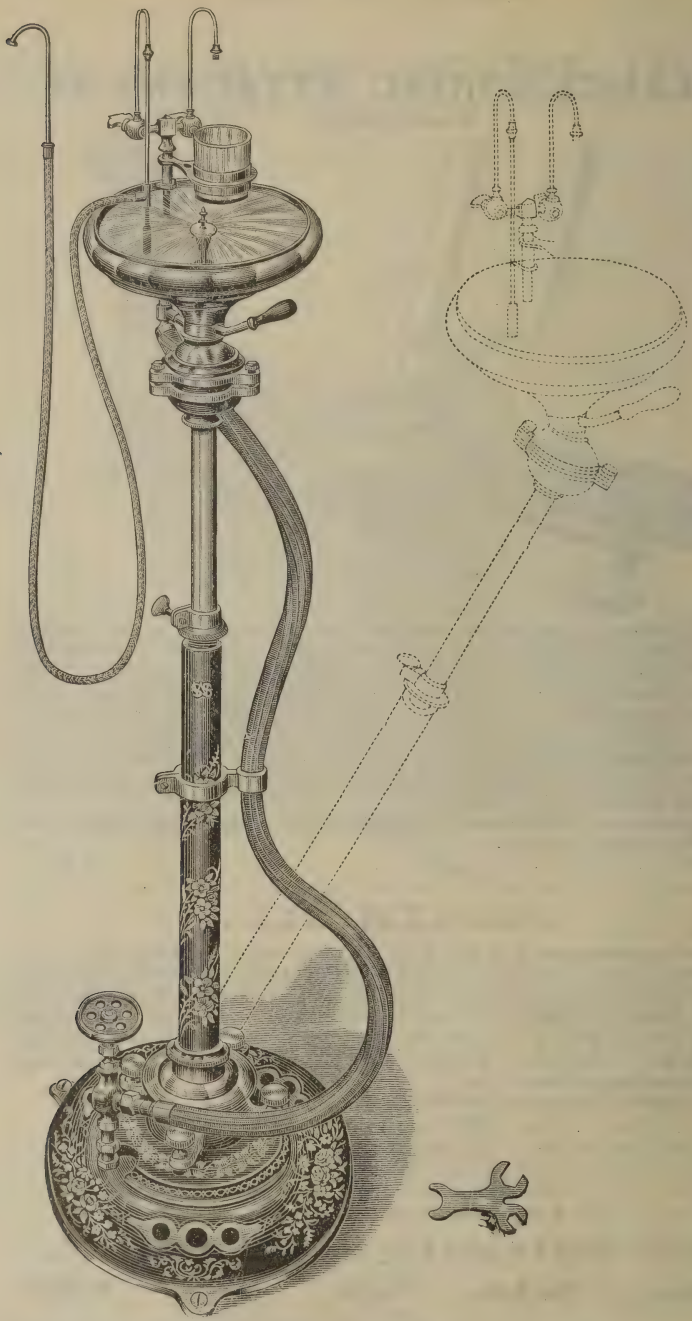
We are frequently asked what kind of oil should be used in the Wilkerson and Pedal-Lever Dental Chairs. We reply to all such inquiries that the oil we send with them was specially prepared for us after a long course of experiments in our effort to obtain a mixture of oils that would stand the variations of temperature without gumming. Several complaints have been received from dentists that their oil-wells leaked, but on examination we have found that in renewing the oil they have put in too much,—in fact, filled them above the packing of the oil-well, and in time it soaked through the packing and trickled down the outside of the well. We now label every can that is sent out, and each contains the proper qantity for the Chair, as marked, viz.:

3½	pints	for	the	Wilkerson Low-Base Chair	$1 00
3	"	"	"	Medium	1 00
4	"	"	"	High	1 25
4	"	"	"	7 in. High-Low Chair	1 25
4	"	"	"	9 " " "	1 25
5	"	"	"	11 " " "	1 50
5	"	"	"	13 " " "	1 50
4	"	"	S. S. White Pedal-Lever Chair		1 25

THE ADJUSTABLE FOUNTAIN SPITTOON.

Patented May 21, 1881.

REDUCTION IN PRICES.



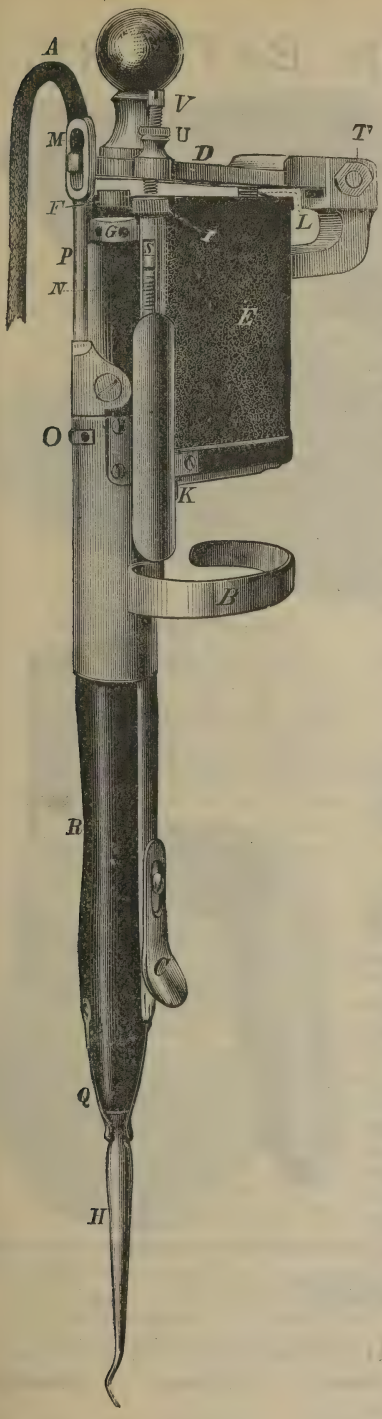
The top of the bowl of the Adjustable Fountain Spittoon, when in its lowest position, is 29 inches from the floor; at its greatest height, 44 inches, giving a vertical range of 15 inches. When lowered, the center of the bowl may be placed anywhere within a circle 13 inches in diameter; at its greatest height this circle is 23 inches in diameter. Within these limits the bowl may be adjusted at any height or inclination, by means of the universal ball-and-socket joints. The mouth of the bowl is 9 inches in diameter; the depth 3 inches. The whole is well made and handsomely finished, forming an attractive piece of office furniture.

Complete, with two Faucets and Saliva-Ejector with Silk-covered Tubing	$70 00
Complete, with two Faucets, without Saliva-Ejector	64 00
Complete, with one Faucet, without Saliva-Ejector	58 00
Boxing	2 00

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

The Bonwill Electro-Magnetic Mallet,



With Modifications made by Marshall H. Webb.

Patented Jan. 26, 1875; Nov. 16, 1875; Dec. 14, 1875; Feb. 15, 1876; Oct. 15, 1878.

This Mallet combines the most valuable inventions of Drs. Bonwill and Webb. It needs no words of encomium to commend it to those who are familiar with its merits. It is indorsed by many of the most skillful operators in the world. When properly understood, it will be found to approach more nearly the ideal condensing instrument than any other ever offered in the profession.

Some of its principal advantages are:

First—The blow is delivered upon the packing-instrument just when its force is greatest, because the attraction of the magnets increases constantly as the mallet approaches them until the circuit is broken.

Second—The force of the blow can at all times be controlled by the operator.

Third—Properly used, it condenses the gold thoroughly and evenly throughout the entire filling.

Fourth—Gold may be impacted against thin, frail walls with ease and without fracturing the enamel.

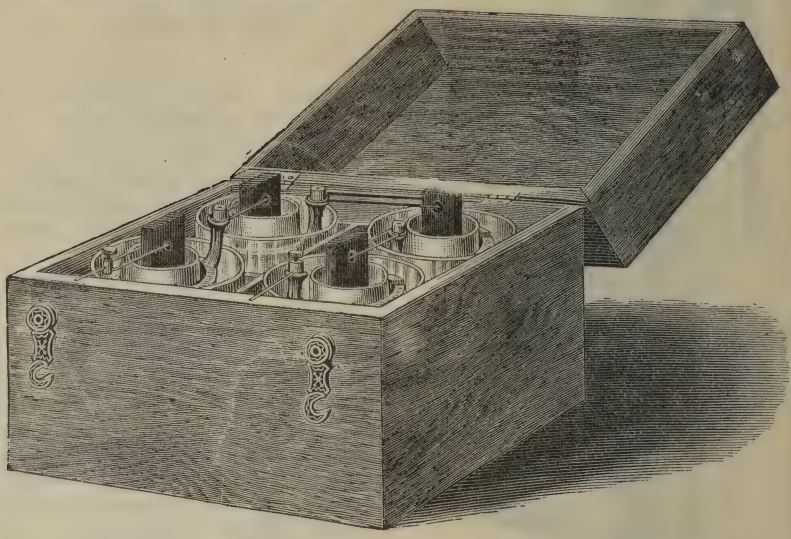
Fifth—It saves the operator time and the fatigue attendant upon the use of a hand, automatic, or foot-power mallet.

Sixth—When its operation is understood and the battery is kept in order as per instructions which accompany each Mallet sold, the instrument does not require any more attention than is involved in the care of a watch.

PRICE.

Mallet, with seven feet Silk Cord, and Connecting Posts	$35.00
Bunsen Battery, with four Cells Complete, in Box	12.00
Mallet and Bunsen Battery, Complete	47.00
Improved Plugger Battery, four Cells, Complete	16.00
Mallet and Improved Plugger Battery, Complete	51.00

THE BUNSEN BATTERY.



IMPROVED CONNECTIONS

—FOR—

BUNSEN BATTERY.

Suggested by Dr. J. ROLLO KNAPP.

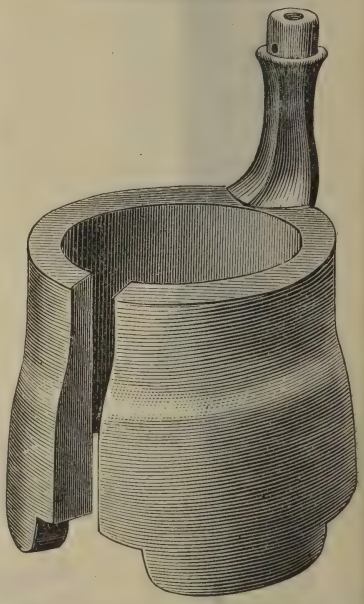
No. 1.

No. 2.

By the use of these connections, the old forms of carbon clamps, platinum-faced wires, posts for zincs, and cord connections are dispensed with.

Their simplicity can be readily understood at a glance. The looped end of wire No. 1 is sprung over the round portion of the zinc stem and the flat platinum-faced buttons grasp the carbon. There is but one zinc binding-post used, viz.: In the first zinc to which the wire or cord is attached. To the last carbon is connected wire No. 2, which is fastened to the binding-post to which the other wire or cord is attached. They can be put on and taken off in an instant, and if kept clean will make a firm and positive contact. In adopting these connections we were obliged to alter the form of the zinc stems, but to enable those who have the old forms of connections to continue their use we have drilled and tapped holes in the stems to admit the screws of the old-style brass posts. Hereafter this style of zinc will be supplied on all orders.

ZINC FOR BUNSEN BATTERY.



Price, Zincs	each,	$0 75
" Knapp's Battery Connections, complete, per set of 4		2 00
" " " " separately, No. 1	each,	50
" " " " " " 2	"	65

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

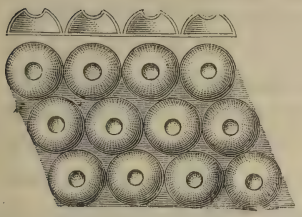
Important to Dentists Using the Electric Mallet.

Complaints in regard to the working of the Electric Mallet have, in many instances, been found to depend upon the fact that the instruments used with it were not of our manufacture, and not properly fitted to the Mallet. To insure satisfactory results with the Electric Mallet, the most scrupulously exact adaptation of the instrument is required. The most trifling deviation in either of several measurements will be fatal. Each instrument must be tried in master gauges to prove its absolute correspondence. When it has been so proved our workmen are not allowed even to polish the swell end of the plugger for fear of destroying its efficiency. Instruments made in imitation of our manufacture, however closely resembling them, cannot in the nature of things be expected to give satisfaction.

SURFACE COHESION FORMS FOR ARTIFICIAL DENTURES.

INVENTION OF DR. JOSEPH SPYER.

PATENTED JANUARY 6, 1885; DECEMBER 8, 1885.



A thin metallic form, the surface of which is covered with minute papilliform prominences—shown magnified four diameters—which by displacement of mucus at the points of gum contact effect surface cohesion as if the denture were glued to the gums, yet cause no irritation and leave no marked indentations. Adapted for either upper or lower plates. By the aid of this device strong cohesion can be had with a narrow plate, and thus the sense of taste be left unimpaired. Lower plates so made are very firm. Put up in packages containing one dozen forms, which can be cut for either upper or lower plates. Full directions accompany each package.

PRICE.....per box containing one dozen Forms, $1.00
RUBBER CEMENT.....per bottle, .35

DENTOPLASTIQUE.

This Cement is of the zinc phosphate order, and superior to most of its class. Absolute permanence under all conditions of use and abuse cannot be justly claimed for any plastic material, but if this cement be properly mixed and used precisely as directed it may be expected to last in most mouths for years without noticeable waste or wear.

We present it with the assurance that its merits will entitle it to confidence when manipulated in exact accordance with the directions.

Made in four colors :

PEARL, CANARY,
IVORY, COFFEE.

PRICE.....per box, $1.00

THE S. S. WHITE DENTAL MANUFACTURING CO.,

PHILADELPHIA, NEW YORK, BOSTON. CHICAGO, BROOKLYN.

To the Dental Profession.

GENTLEMEN:

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

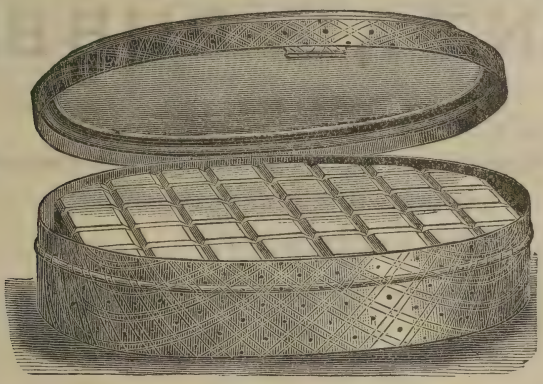
I. W. LYON, D.D.S.,

88 MAIDEN LANE, NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

DR. I. W. LYON'S TOOTH TABLETS



For Purity, Efficiency, Neatness and Convenience these Tablets have no equal as a Dentifrice. They are put up in Seamless Metallic Boxes, which are impervious to air and moisture, and may be carried on a journey without danger of breaking.

HIGHLY INDORSED BY EMINENT DENTISTS.

PRICE **50** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

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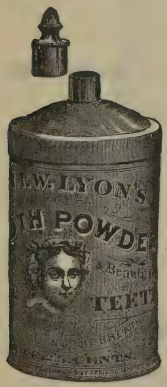

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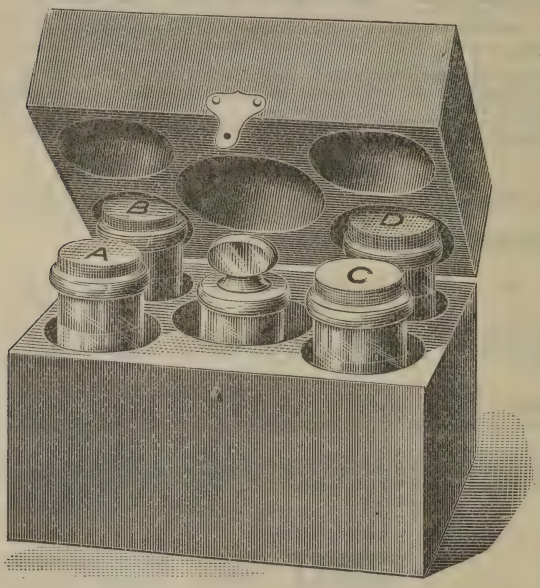

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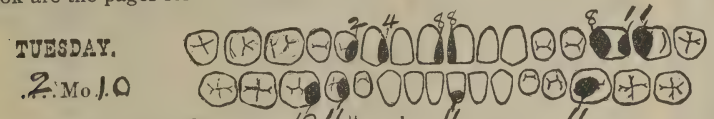

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12		5	

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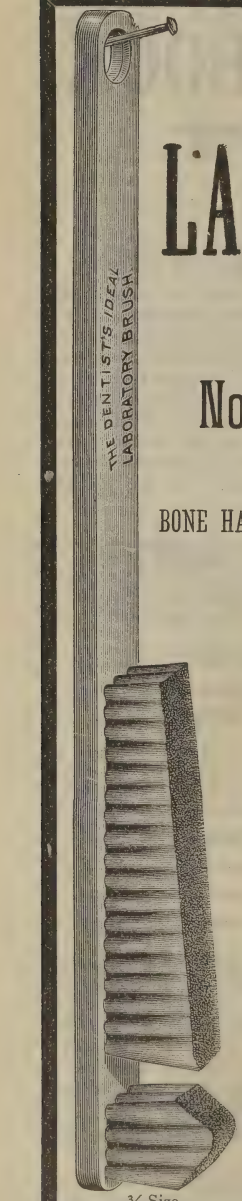

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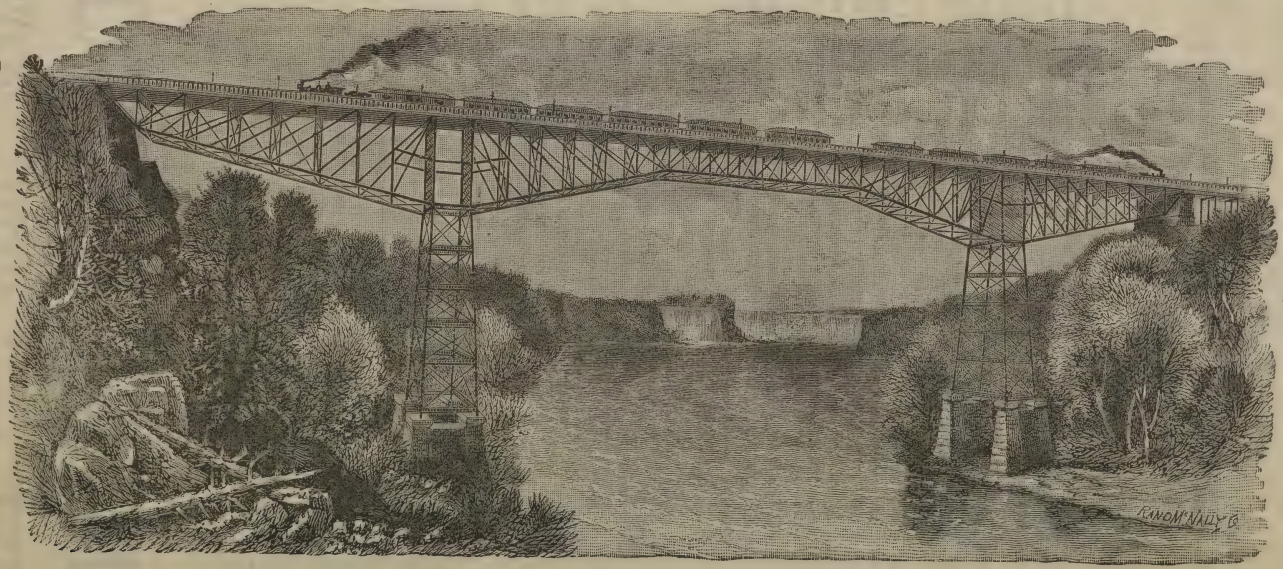

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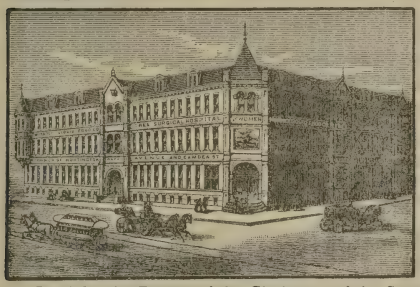

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The spring course will begin Tuesday, April 5, 1887—the week following Commencement Day—and terminate the 22d of the following June.

Letters of inquiry should be addressed to

DR. TRUMAN W. BROPHY, *Dean,*
125 State Street, CHICAGO, ILL.

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IN THE

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DR. TRUMAN W. BROPHY,
125 State Street.

Announcement for regular course 1887 and 1888 will be issued early in the summer.

CHICAGO, February, 1887.

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Devoted to the Advancement of Dental Science.

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Vol. VIII. MAY, 1887. No. 5.

13 MAY 87

THE

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A Monthly Journal

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W. C. BARRETT, M. D., D. D. S.,

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Horsford's Acid Phosphate	f ʒ ij

M

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℞

Elix. Ferri et Quininæ	
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Tinct. Gentianæ Comp.	f ʒ ij
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Table of Contents—May.

ORIGINAL COMMUNICATIONS:

Contributions to the History of Development of the Teeth. Carl Heitzmann and C. F. W. Bodecker..... 225
The Elements of Success. W. C. Barrett..... 235
Driving Wheels and Strokes in a Dental Engine. W. H. Rollins..... 248

REPORTS OF SOCIETY MEETINGS:

Central Dental Association of Northern New Jersey..... 249
"To Be or Not To Be." J. G. Palmer..... 256
New York Odontological Society..... 260

EDITORIAL:

The American Dental Association..... 265
The Waite Testimonial Fund..... 267
"Let Us Have Peace."..... 270

CURRENT NEWS AND OPINION..... 271

Index to Advertisements.

Horsford's Acid Phosphate....Cover Page 2
Charles H. Phillips Chem. Co.. " 2
Dr. Robert S. Ivy..... " 2
Underwood Spring Water..... " 3
R. S. Williams..... " 4
Listerine..... Adv. Page 1
A Sensitive Point ..... " 2
Munn's Patents..... " 2
Detroit and Cleveland Nav. Co. " 2
The Medical Register ..... " 2
Seabury & Johnson..... " 3
Claudius Ash & Sons..... " 4 & 5
Acme Gold Foil..... " 6
American Dental Manuf. Co... " 7
Caulk's Filling Materials..... " 8 & 9
Cogswell's Disk Carrier & Guard " 10
Edward Rowan & Co..... " 11
C. A. Timme & Co..... " 12 & 13
Hardman's Amalgams..... " 14
Dibble's White Amalgam..... " 14
E. Kearsing..... " 15
Lawrence's Amalgam..... " 15
Wilmington Dental Mf'g Co.... " 16
Gasoline Furnace..... Adv. Page 17
New York Dental Manuf'g Co.. " 18 & 19
S. S. White Dental Manuf'g Co. " 20–25
I. W. Lyon..... " 26 & 27
Akron Dental Rubber..... " 28
Parson's Eureka Alloy..... " 29
Cherry Malt Phosphites..... " 29
J. H. Smith's Cements..... " 30
To Inventors..... " 30
Parke, Davis & Co..... " 31
A. J. Nickolds..... " 31
Vulcanizable Gold..... " 32
Welch Dental Co..... " 33
Laboratory Brush..... " 34
Dr. Brown's Univ. Screw Clamp " 35
Daly Gold Lining Dental Co.... " 36
Murdock's Liquid Food Co.... " 37
New York College of Dentistry " 38
Philadelphia Dental College.... " 39
Chicago College of Dent. Surg'y " 40 & 41
Dental Review..... " 42
Dunn's Medical Syringe ..... " 42

The Independent Practitioner—Vol. VIII.

AN INDEPENDENT DENTAL JOURNAL

PUBLISHED BY DENTISTS FOR DENTISTS.

Prospectus.

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THE

Independent Practitioner.

VOL. VIII. MAY, 1887. NO. 5.

Original Communications.

NOTE.—No paper published or to be published in another journal will be accepted for this department. All papers must be in the hands of the Editor before the first day of the month preceding that in which they are expected to appear. Extra copies will be furnished to each contributor of an accepted original article, and reprints, in pamphlet form, may be had at the cost of the paper, press-work and binding, if ordered when the manuscript is forwarded. The Editor and Publishers are not responsible for the opinions expressed by contributors. The journal is issued promptly, on the first day of each month.

CONTRIBUTIONS TO THE HISTORY OF DEVELOPMENT OF THE TEETH.

BY CARL HEITZMANN, M. D., AND C. F. W. BÖDECKER, D. D. S., M. D. S.

I. HISTORY OF THE DEVELOPMENT OF THE ENAMEL.

The fact has long since been established that the first step toward the formation of teeth in the human subject is the appearance of a furrow behind the lips, corresponding to the cartilaginous jaws, about the sixth week of intra-uterine life. At this time a trace of cancellous bone is usually formed around the cartilage. The epithelium covering the furrow is stratified. In vertical sections through the upper and lower jaws of an embryo of this age, we observe a depression surrounded on either side by an elevation, which is bounded toward the lips by a shallow ridge, and toward the tongue by a varying number of alternating depressions and shallow elevations—the floor of the oral cavity. The embryonal tissue corresponding to the furrow is characterized by an accumulation of medullary corpuscles, as well as by a cord-like formation, the corpuscles being in form mostly spindle-shaped.

At the end of the second month of intra-uterine life, the furrow is deepened, and lined with stratified epithelium, the deepest layer consisting of columnar epithelia which are plainly marked. The labial wall of the furrow may exhibit secondary elevations indicative of papillæ. From the bottom of the furrow, or one of its walls, a prolongation of epithelia takes place, which originally is composed of columnar epithelia, but later appears in the shape of a solid epithelial point or cord, whose borders are composed of columnar, and whose interior is filled with cuboidal epithelia. All these changes take place between the third and fourth month of intra-uterine life, and can be observed best in frontal sections of the jaws.

No accurate time can be fixed for these formations, since frontal sections of a three-month embryo exhibit different stages of epithelial prolongations, as well as epithelial cords which have reached a certain depth, and are broadened at their ends like a cup or bell jar (Tomes) surrounding a knob-like accumulation of medullary corpuscles, which is the first trace of the dentine papilla.

The epithelial peg or cord is either stretched out, or it runs a more or less wavy course. Not infrequently knobs or buds grow out from it with a peculiar concentric arrangement of the epithelia. The epithelial cord, in some instances, may be short, almost immediately broadening after its origin from the surface, or it may be of varying, nay considerable length, taking an oblique, or devious course to such an extent that the cord runs parallel with the cup-shaped enlargement, and is inserted into the latter at an acute angle. It also occurs that the main epithelial cord runs almost parallel with the outer surface, giving off a branch interiorly for the formation of the temporary tooth, while the cord itself extends further, terminating bluntly at its distal end. Close below the furrow, from the main epithelial cord a lateral cord sprouts out, likewise more or less knobbed, which, as is generally admitted, represents the first trace of a permanent tooth.

If we examine one of these cup-shaped enlargements, we observe a distinctly marked border composed of columnar epithelia, whereas the interior of the cup is filled with medullary corpuscles, which, in the centre, present the so-called stellate reticulum. At the end of the fourth and the beginning of the fifth month, we invariably find some epithelial cords, which, at their interior ends, are

FIG. 1.—*Epithelial cord terminating in the enamel organ. Human embryo at the end of the fourth or the beginning of the fifth month of intra-uterine life.*

O. Stratified epithelium of the oral cavity.
TT. Epithelial cord of temporary tooth.
PT. Epithelial cord of permanent tooth.
N. Epithelial nests and buds at the bottom of the furrow and along the cords of both the temporary and permanent teeth.
M. Myxomatous tissue of the enamel organ (stellate reticulum.)
EE. External (outer) epithelium.
IE. Internal (inner) epithelium.
I. Intermediate layer between inner epithelium and myxomatous tissue.
P. Papilla with numerous blood-vessels.
E. Embryonal or medullary tissue crowded with medullary corpuscles at a certain distance from the epithelial formation.

Magnified 50 diam.

broadened, and contain a distinctly marked stellate reticulum. (Fig. 1.)

The first question to be entered into is: whence comes the myxomatous tissue known as the stellate reticulum in the interior of the cup? According to our present knowledge of the tissues of the mammalian organism, we are entitled to call the stellate reticulum a myxomatous tissue, which is a variety of connective tissue. This tissue occurs most extensively in the embryonal organism, and remains throughout life in the fully developed body only in a limited number of organs, such as the pulp of a tooth, the lymph ganglia, and the so-called adenoid tissue, which properly ought to be called lymph tissue, and is distributed throughout the mucous membranes, especially during the early periods of life. Unless we assume that the enamel organ is a tissue entirely different from all others entering into the structure of the body, we must call it myxomatous connective tissue.

Those who strictly adhere to the teachings of Thiersch and Waldeyer, will be loath to admit that epithelium can ever change into connective tissue. Previous researches, however, have led us to the conviction that such a transformation is by no means impossible. The thyroid gland, for instance, is originally composed of alveoli lined by epithelia. Shortly after birth the epithelium, however, is replaced by a medullary or lymph tissue. The whole central nervous system (the brain and spinal cord) originates from the embryonal epiblast, which is strictly epithelial in nature. Nevertheless, nobody will maintain that the central nervous system, so richly supplied with blood-vessels, is an epithelial structure, except in the lining of the ventricles of the brain, and the central canal of the spinal cord. There may be advocates of the exclusive nature of epithelial tissue, who might think of an immigration of medullary corpuscles between the epithelia of the enamel organ for the benefit of the formation of the stellate reticulum, but there is not the least indication of such a process in any of our specimens. On the contrary, we can prove a gradual transformation of the epithelia into myxomatous tissue.

In the third month of intra-uterine life, we observe, inside of the epithelial cup of the enamel organ, a zone entirely occupied by medullary corpuscles, and even in the fourth and fifth month such a gradual transition is distinctly traceable. (Fig 2.)

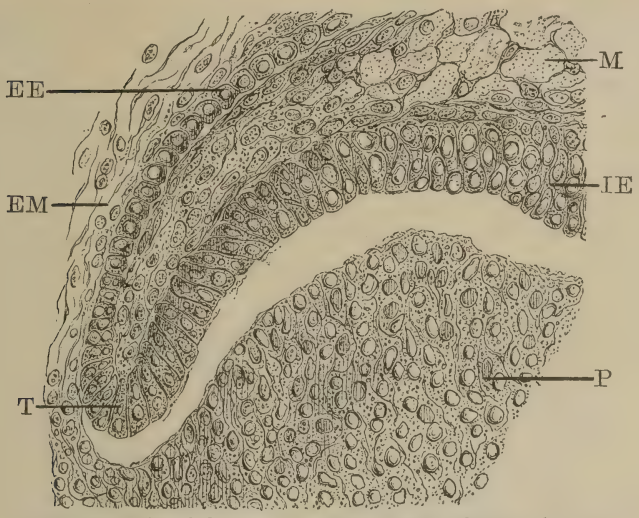

FIG. 2.—*Lower edge of the cup of the enamel organ, showing the recurvation of the external into the internal epithelium, at the end of the fourth month of intra-uterine life.*

EM. Embryonal or medullary tissue.

EE. External epithelium, composed of cuboidal epithelia.

T. Cuboidal epithelia turning into columnar epithelia.

IE. Inner epithelium breaking down into medullary tissue and giving rise to the spindles composing the intermediate layer, close above the internal epithelium.

M. Myxomatous tissue, or stellate reticulum, bounded toward the external and internal epithelium by the intermediate layer and continuous with the medullary tissue filling the border of the cup.

P. Papilla.

Magnified 500 diam.

Those who still adhere to the cell doctrine will never be able to understand how medullary tissue arises from epithelia. According to our views, however, there exist no individual cells, but layers of protoplasm, in which the living matter is distributed in a reticular arrangement. Every particle of the living matter is able to grow from the size of a minute granule to that of a solid lump, in which a differentiation afterwards takes place into a peripheral protoplasm containing comparatively little living matter, and a central body, termed nucleus, with a larger amount of living matter.

The inner epithelia, at the period mentioned above, exhibit augmented nuclei and small glistening granules near the fold, corresponding in position to the neck of the future tooth. The more we turn to the centre of the cup, the more will we be struck by the presence of glistening homogeneous lumps in the epithelia, until we

have reached the centre of the cup, where we observe that epithelium has been transformed into a number of such lumps in a regular arrangement, which reminds us of their origin from previous epithelia. The original epithelia gradually become enlarged, and at last are split up into a number of medullary corpuscles. As a rule, this process of transformation is most marked in the original epithelia at the portion directed toward the stellate reticulum, whereas, in that portion nearest the papilla, the epithelial character may still be preserved. (Fig. 3.)

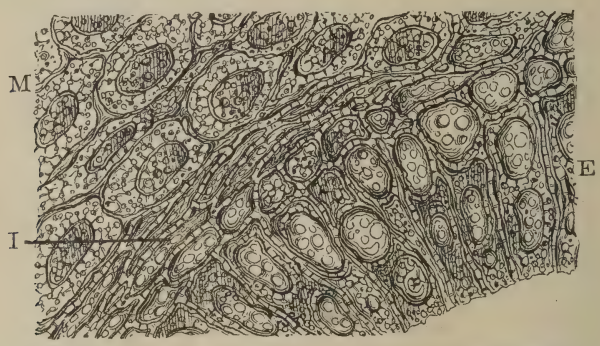

FIG. 3.—*Inner epithelium of the enamel organ of a human embryo of four months of intra-uterine life.*

E. Inner epithelia connected with each other by delicate thorns, traversing the cement substance. In their interior vacuoled lumps are seen of greatly varying sizes, which toward the enamel organ are split up into smaller reticulated corpuscles, all being inter-connected by delicate offshoots.
I. Intermediate layer composed of spindle-shaped medullary corpuscles.
M. Beginning formation of the myxomatous reticulum, in the meshes of which we observe nucleated protoplasm.

Magnified 1200 diam.

The medullary corpuscles first assume a spindle shape, constituting the intermediate layer (*stratum intermedium*). The innermost spindles are in connection with a comparatively coarse network, representing the first trace of the stellate reticulum. The trabeculæ of this reticulum are composed of solid or vacuoled spindles, enclosing spaces which appear to be filled with a distinctly reticulated protoplasm, holding central nuclei. The latter exhibit a varying number of coarser granules, the so-called nucleoli.

Not infrequently the intermediate layer is missing, which affords the best opportunity for observing the gradual transition of the homogeneous globules arising from the epithelia into nucleated protoplasmic bodies, and at last into the myxomatous reticulum.

Changes similar to those described take place in the central portions of the external epithelia, and, as it seems, even preceding those of the inner. Thus the original columnar bodies of the outer epithelium are reduced to a row of cuboidal epithelia, as seen in Fig. 2, E. E. The medullary corpuscles are slightly enlarged, their nuclei, at first plainly visible, are likewise split up into a delicate reticulum, and both become infiltrated with a myxomatous basis-substance. The peripheral portions of the original medullary corpuscles, on the contrary, are solidified into nucleated formations of living matter, representing the stellate reticulum proper. The meshes of the myxomatous tissue in the stellate reticulum are originally small, and correspond in size to the medullary corpuscles, from which they arose. The corpuscles of the stellate reticulum are mostly solid. Later, several medullary corpuscles are required for the formation of a large field of basis-substance. The original stellate reticulum, in this view, must fall back to an embryonal or medullary tissue before changing into a more perfect myxomatous tissue, such as we observe from the end of the fifth month of fœtal life up to the full development of the enamel. (Fig. 4.)

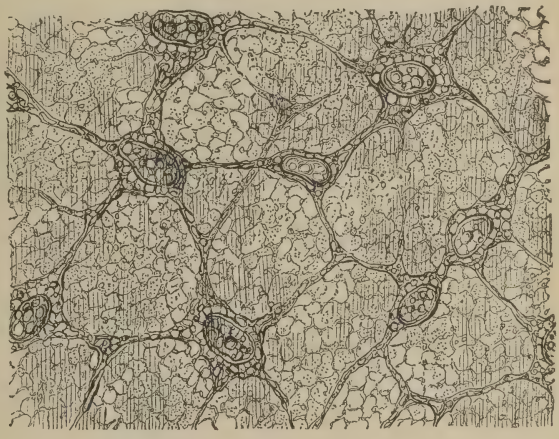

Fig. 4.—*Stellate reticulum, or myxomatous tissue, of the enamel organ of a human fœtus of five months of intra-uterine life.*

Magnified 1200 diam.

Toward the end of the fourth, and the beginning of the fifth month, the stellate reticulum is composed of nucleated protoplasmic bodies, with a varying number of branching and inter-connecting offshoots. With low powers of the microscope, the basis-substance in the meshes, enclosed by the corpuscles and their offshoots, appears to be homogeneous and structureless. The highest powers, however, reveal in this basis-substance the

presence of a delicate reticular structure, even without the addition of any reagent. This structure has arisen by a direct transformation of the original medullary corpuscles into basis-substance. In the highest development of the stellate reticulum, such as seen in the seventh and eighth month of fœtal life, the nucleated corpuscles are more slender, and the reticulum is composed mainly of delicate branching and inter-connecting fibres.

The further changes of the external epithelium are of considerable interest. While about the fourth month of intra-uterine life the inner portions of the external epithelium are, as mentioned above, transformed into medullary tissue and participate in the formation of the myxomatous enamel organ, a single row of cuboidal epithelia is left. From the remains of this external epithelium, a new growth takes place of a markedly centrifugal character. By a multiplication of the epithelial elements, solid buds and knobs are formed, well known to previous observers. (Fig. 5.)

These buds are at first in continuity with the external epithelium, and have a distinct layer of columnar and a varying number of inner layers of cuboidal epithelia. They are characterized by a brownish color, common to all epithelial formations. We observe that, both in the central portions of these buds and along the original row of the external epithelium, a transformation takes place into medullary corpuscles, the same as we observe toward the myxomatous enamel organ. This medullary tissue develops into connective tissue of a decidedly fibrous character. Thus we observe numerous interruptions in the external epithelium, partly filled with medullary and partly with fibrous connective tissue. The latter is in direct connection with the myxomatous reticulum, or this connection is established by spindle-shaped corpuscles, resembling those of the intermediate layer close above the internal epithelium.

At the time when the buds sprout from the external epithelium, an active new formation of blood-vessels and blood corpuscles takes place in the immediate vicinity of the buds. At first, we notice large protoplasmic bodies with coarse granules, which were known to Theodore Schwann, in 1839, by the name of blood-cells. With the increase of the size of these bodies the granules likewise become coarser and assume the properties of the so-called hæmatoblasts. These grow up to the size of red blood corpuscles, and we not in-

frequently encounter in the bays between the buds, groups of hæmatoblasts, or fully developed blood corpuscles, apparently isolated

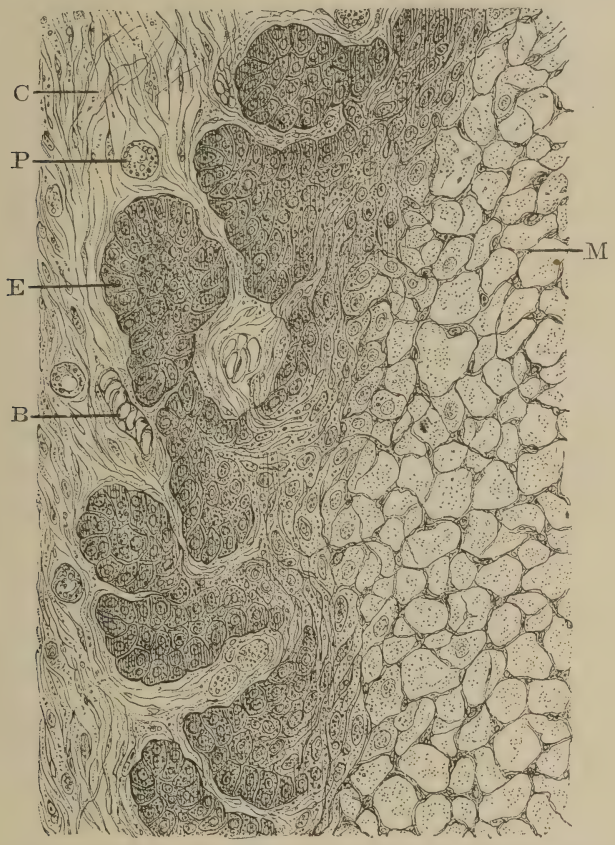

FIG. 5.—*Budding of the external epithelium of the enamel organ of a human fœtus seven months old.*

M. Myxomatous reticulum of the enamel organ.
C. Delicate fibrous connective tissue.
E. Epithelial bud arisen from the external epithelium.
P. Large protoplasmic body filled with glistening coarse granules.
B. Newly formed blood-vessel.

Magnified 500 diam.

and in no connection with blood-vessels. At last, capillary blood-vessels arise from the conference of blood-cells, which are filled with red blood corpuscles. The splitting of the external epithelium into isolated buds and nests of an epithelial character, is

especially marked near the neck of the future tooth. (Fig. 6.) At this place the amount of myxomatous enamel organ in a seven-

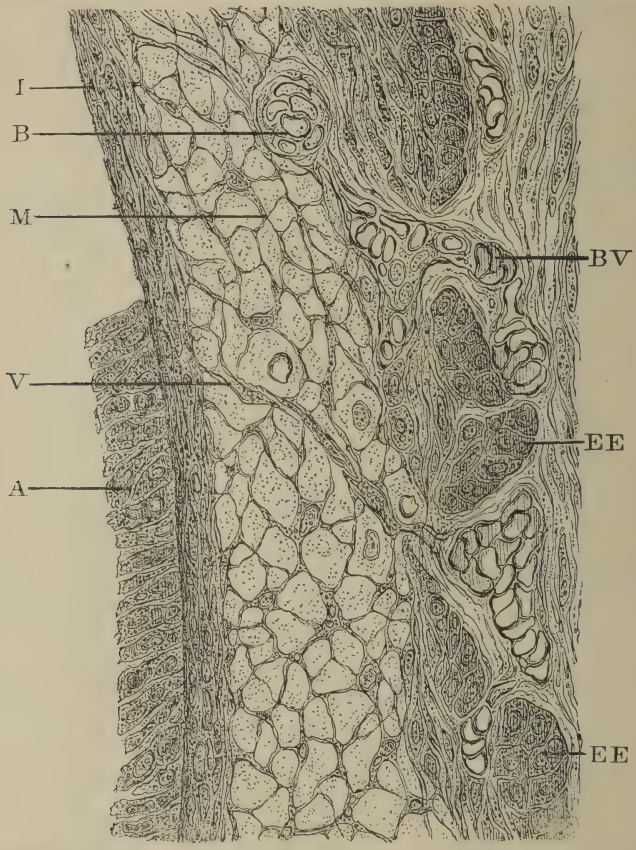

FIG. 6.—*Isolated epithelial nests of the place of the enamel organ corresponding to the neck of the future tooth of a human fœtus seven months old.*

M. Myxomatous reticulum of the enamel organ.
A. Row of ameloblasts.
I. Intermediate layer composed of spindles and fibres.
B. Vesicle filled with hæmatoblasts and red blood-corpuscles.
V. Capillary blood-vessel forming from trabeculæ of the myxomatous reticulum.
BV. Irregular spaces filled with hæmatoblasts and red blood corpuscles, lined by endothelia and in an incomplete connection with forming capillaries.
EE. Epithelial nests, the remnants of the external epithelium.

Magnified 500 diam.

month fœtus, is usually small, since a great quantity of it has already been transformed into enamel tissue. But even here, a few

small and isolated epithelial nests are seen, surrounded by a large number of capillary blood-vessels, filled with blood corpuscles. It is obvious that all these blood-vessels are newly formed, and indeed we can trace the formation of blood-vessels in this situation, step by step. Even the myxomatous trabeculæ of the enamel organ will participate in the formation of capillary blood-vessels. We have seen closed spaces, or vesicles, sprung from the basis-substance of the myxomatous tissue, filled with hæmatoblasts and red blood corpuscles, partly in connection with already formed or forming capillaries. No doubt the living matter enclosed in the basis-substance has grown into hæmatoblasts. This process is indicated by the appearance of either coarsely granular or compact glistening nuclei in the meshes of myxomatous reticulum.

Wherever we observe epithelial nests, they are invariably enlarged toward the enamel organ by spindles and fibres of an intermediate layer. Their scarcity and diminutiveness at the place corresponding to the neck of the tooth, indicates that they are completely transformed into medullary tissue. Considering the fact that at the end of the intra-uterine development the enamel organ is nearly exhausted, and the enamel which is formed up to that time is comparatively thin, there is good reason for the assumption that the medullary tissue sprung from the previous external epithelium is the source for the completion of the enamel, such as we observe upon temporary teeth when they emerge from their socket.

(TO BE CONTINUED.)

THE ELEMENTS OF SUCCESS.

BY DR. W. C. BARRETT.

AS READ BEFORE THE CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

You have asked me to address you upon a subject that permits a wide range of thought. What are the elements of success, either in dental practice or in any other vocation? Are they natural or acquired? Does dentistry demand different qualifications in its exemplars from other callings? These are questions that may well engage our most earnest attention as dentists.

Before attempting an analysis of the means and methods by which the summit of professional ambition is attained, it will be well for

us to have a fair understanding of what is meant by success in practice. Different men have widely variant ideas as to the end which it is their ambition to attain. That which would content one might fall far short of the desires of another. The bent and tone of the human mind differs with the individual, and the pleasure of one is the harassment of another. Some find their greatest gratification in labor, while others long for nothing so much as opportunity to gratify their indolence. One man views everything from a pecuniary stand-point, and considers the acquisition of wealth the sole measure of success, while others make the obtaining of knowledge their only good. Some men are most highly desirous of station and influence; of power and prerogative. As the one views everything from a financial stand-point, so the other looks at all matters with reference to their ability to pander to his love for notoriety. It is hard to say which object is of itself the more despicable. There are a few—I fear but too few—who are entirely philanthropic in their aims; whose honest desire is to do the most good possible in the world, and to do that in the most unostentatious way. All honor to such. It is a pity that they are so likely to be lonesome.

I believe that the majority of honest men in our profession have mixed motives. They desire success that it may bring them a competency, and this wish is thoroughly praiseworthy. They hope to succeed that they may become known, and be respected by their fellows, and this too is a high ambition. They desire to be useful, both because of their real humanity and because of the knowledge that it is only the useful man who is thoroughly respected. Here, then, we have three motives that actuate honorable men; the desire for wealth, for reputation, and to be of use to their fellowmen. How shall these things be secured ?

The foundation for success in life must be laid by the parents of the coming man. Before the child is old enough to comprehend what is best, or to mark out a line of life, his training should be well under way. In this day of enlightenment the man who is without a fair English education is heavily handicapped in the race of life. This education should commence in early childhood. Not only a training in the schools, but the physical and moral culture should be begun early. One-fourth of man's three score and ten years should be spent in preparation for the active duties of life.

Not before the age of eighteen is the young man's judgment enough matured, or his experience sufficiently varied to enable him safely to mark out a path for the future and to select his vocation. Probably nine-tenths of us are governed by circumstances and environments in our choice of a means of livelihood, and that is why so few of us are really successful. The round pegs get in the square holes, and it is no wonder that they do not fit. To very few of us is it vouchsafed that we shall be found in exactly the right place when the opportunity of life comes. The majority, if not the whole of us, are endowed with certain qualities that, if the proper occasion arrives, will carry us on to fortune. General Grant waited many years in darkness and doubt before he found the opportunity to display his abilities. Did you ever think of the possibilities that are wasted; of the heroic qualities that never have an opportunity to exhibit themselves? The poet Gray, in musing in a country church-yard, saw this, and beautifully expresses it—

> "Perhaps in this neglected spot is laid,
> Some heart once pregnant with celestial fire;
> Hands, that the rod of empire might have swayed,
> And waked to ecstasy the living lyre."

You that are parents should not forget that the success or failure of the child given to your training is largely dependent upon the way in which you perform that duty. The temptation to moralize in this connection is very great, but I must recollect that you probably expect from me something of a practical character. You desire that I shall say something that will the better enable you as dentists to reach the goal of your ambition, and I must confine myself within professional limits.

The successful dentist, then, must be an educated man, and must possess a disciplined mind. Dentistry aspires to rank with the learned professions. The accepted dentist is no longer an empiric, a mere artisan, a workman. He is entrusted with grave responsibilities, and he must be qualified for his task, or he is unfit for his vocation. Within a few years—easily within the recollection of even young practitioners—the law has, in most of the important States, prescribed what shall be his qualifications. It has very properly announced that the ignorant charlatan shall not undertake the performance of duties for which he has made no effort to fit himself. This has elevated our status immeasurably. New York

was one of the early States to secure proper legislation, and, with others, I labored for years before I saw the attainment of my desires. I can look back upon the status of dentistry in my own State, before the passage of the act, and it seems to me amazing, the change that has been wrought in the estimation of the public. So prejudiced were our people, that we were obliged to undergo a probation of years under a law that simply recognized us, before we dared to ask the legislature to place any restrictions upon those who were desirous to enter our field. It was imperative that we should first educate the laity to an appreciation of dentistry. That has been done, and now we have a law that is not only sustained by jurists, but by the sentiment of the people as well, and we are secure in our acceptation. This appreciation on the part of the public is constantly augmenting, and the time is at hand when intelligent people everywhere will refuse to acknowledge or patronize the dentist who has not the diploma of some reputable college.

It is absolutely essential, then, that the dentist of the future should possess a well-earned diploma. We are now in the transition stage of professional development, and I am aware that many are in the practice of dentistry who have not had scholastic advantages. But that does not mean that they are ignorant, or if so, that they need remain in that condition. There are abundant opportunities for study, and the man who is imbued with a proper spirit will not be content while there is a single principle unattained.

Having obtained a professional education and entered upon practice, the most critical period in the life of a young dentist commences. His professional habits are yet to be formed, and his feet are to enter upon the road that they will in all probability follow to the end. He is apt to be puffed up with a feeling of his importance. Too often he imagines that his professional education is ended, when in fact it should be but just begun. He is often inclined to rely upon what he has already accomplished, and to trust to his genius, his talent, for the future. Genius! if he have it, the chances are a hundred to one that it will prove a curse to him. The possession, or the imaginary possession, of great ability has ruined more promising young men than any other one thing. There is no such thing as intuitive genius, save the capacity for work. An ounce of industry is worth a ton of talent in any market. It is the man of patient, plodding perseverance who soonest reaches the goal. It is

the man who always has a book at his elbow, who is constantly endeavoring to master the underlying principles of his profession, who is never boastful of his own attainments and thus shutting up the avenues of information, but who is rather desirous of obtaining knowledge from any source—he is the one who succeeds. When a young man enters my office, or when I encounter him at a society meeting or elsewhere, and he begins to tell me of his great success in practice, of his unfailing remedies and methods, and of the great numbers who flock to obtain the benefits of his matchless skill, I do not need the eye of prescience to foretell what his future will be. He is instantly weighed in my mental balance and invariably found wanting. He knows too much to receive information from another, and will surely be overwhelmed by his flood of egotism.

But when a young man comes to me and candidly admits that he sometimes meets with difficulties, when he desires to know what should be done in such or such an emergency, how I perform this operation and why I prescribe certain remedies, when he seems possessed with a thirst for professional knowledge and a determination to master every method of manipulation, I know that he will go on acquiring intelligence until the sum of it all will place him in the front rank. Look at the men of acknowledged skill and watch their conduct in the office of a brother dentist. I have had such men visit me, men whom I would be proud to acknowledge as my masters, and I was fairly embarrassed at the attitude of pupilage in which they placed themselves. My mind's eye now rests on one of whom almost any one of us would be glad to learn, and when he entered my office there was not an excavator which he did not carefully examine. Not for the purpose of criticism, but to see what he could learn. There was not an implement which was at all peculiar to me and my methods (we all have our own personal specialties) which he did not exhaustively examine, and of which he did not demand a demonstration. I could see that he was mentally comparing it with his own instruments and methods, and inquiring if he could not better his practice by adopting some of my ways. Had he been an entire stranger to me, I could have read his professional standing by the incisiveness of his questions and his consuming thirst for that which was the best. And what this man was in my office, that he is wherever he goes.

The really earnest man will find instruction everywhere. Some of the most valuable hints that I have obtained I have found in the most unlikely places. I remember getting snowed in on a train, at a small country village, and much against my will spending a day there. There was but one dentist in the place, and evidently he was poorly appreciated. Some of his methods were crude in the extreme, and he was, to all appearance, steeped in poverty to the lips. But I have seldom spent a more profitable day than the one passed in those apparently unpromising rooms. Poor as he was, he was a subscriber to all the best journals, and it was fairly amusing to witness the ingenuity with which he had succeeded in forcing make-shifts of his own devising to supply the place of the expensive apparatus of which he had read. He had no patent saliva-ejector, but he made a piece of soft linen (an old napkin) act as a capital siphon. His hot-air syringe was a common rubber bulb, to which he had attached a piece of brass tubing. Exhausting this, and holding the point over the flame of his alcohol lamp, it was speedily filled with air as hot as he desired it. His rubber dam was carefully economized, and when it leaked, a long spiral of bibulous paper siphoned out the moisture as fast as it entered. There were many other little devices that I saw, which have proved useful to me ever since.

I have indulged in this discursion that I might illustrate my assertion that genius is but another name for industry. The young dentist who has a successful career before him is a man of industry and determination.

There is another quality that the young man just starting in a professional life must possess, and that is an enthusiastic love for his calling. If he views it simply as a means of subsistence, as drudgery to which his unfortunate lot in life has doomed him, failure is certain. He must honestly believe that his is one of the noblest callings which man is privileged to follow. He must be ready to worship the good Providence that has graciously permitted him the high privilege of being a dentist. There must be no drudgery in it to him. He must love his work better than play. His office, next to his home, must be the dearest spot on earth to him. He must possess an absolute affection for his chair and his instruments. He must prefer the society of intelligent dentists above that of any other possible class of men. His successes in practice must be tri-

umphs to him, and he must value a piece of work well done above the honors of the unprofessional world. The time for closing his office must come as a surprise, and the hours spent in his professional engagements must fly as upon the wings of the wind. His heart and mind must be so engrossed in his labor or his study that the days shall seem as hours. When a young man takes hold of his life's work in this way, it is no longer labor. That is not wearisome which we love to do. That is no drudgery in which the heart is engaged. The hours are long and heavy when our bodies are chained to uncongenial toil; when the mind finds its delight where the body is not.

Nor is it impossible for even the dullest laggard to obtain this gladness in his task. Every one can school himself to enthusiasm in his profession if he will but give to it his whole attention; if he will let nothing distract his mind from his business during business hours.

This habit of study must be acquired if success is to be attained. The mind is so constituted that it will find enjoyment in that to which it is constantly directed. A habit of reading is as easily attained as the habit of smoking or chewing tobacco, to which so many dedicate long years, and it is quite as difficult to abandon when once acquired. One can attain a habit of reading scientific and professional books with as much facility as he can the perusal of works of fiction. If his affections are with his business, he will delight to read of that business, and that reading is a necessity for the successful man. The progress of dentistry is so rapid, and the advancement is so marked, that he who sits down for but a single day will find himself left behind. We are moving at a quick march, and only the active can keep up. When I return to my office after a week's absence, I always find an arrearage that must be brought up if I would keep abreast the advance of thought. I dare not let a single number of any of our journals go unread, for if I do I am sure to have dropped a stitch, and soon there will be something in dentistry which I cannot comprehend, because of that interregnum. Dental practice has no place for the lazy man. He will certainly be shoved to the wall, and have the mortification to find himself at the tail-end of the procession.

The young man who aims at success must exercise some judgment in pursuing his studies. He should study principles, and the comprehension of general law. There is no one so contemptible as

he who is continually seeking after recipes, and specifics, and cure-alls, and infallible methods. A young man lately wrote me asking for an unfailing cure for periostitis. The ignorant dolt did not know what periostitis is. His question told me that. A remedy that should cure a disorder that may have a hundred causes, and require as many different methods of treatment! The very idea is an absurdity. He was one of those specific-hunters; one of the men who treat diseases by recipes and unbending rules. No man is qualified to properly attend a case of dental periosteal inflammation until he has obtained a knowledge of what the condition is, and by what circumstances it is modified.

The successful dentist will study to comprehend principles. He will endeavor to go to the root of the matter, and find out what the exact pathological condition is. Then he will study the therapeutic qualities of drugs, and thus become qualified to properly dispense them. When I see a young man filling a note-book with formulas, and recipes, and arbitrary prescriptions, I think he has mistaken his calling. He should have been a carpenter, or a mason, and then he could always have moved by square and compass. A profession differs from a trade in this: that whereas the one is governed by principles and fundamental truths, and its practice is the application of knowledge and judgment, the other is the mere following of unvarying rules, and the working by a mathematical law which makes no demand upon the judgment or intelligence. No two cases of the same disease in different persons should be treated exactly alike; but the blacksmith makes all horseshoes in the same manner. Painting is an art; photography is a trade. The one is an affair of the judgment, the intelligence; the other is prosecuted by rules and recipes. Study, then, must be intelligently directed, and not devoted to the mere accumulation of dry facts.

You will not hear the successful dentist, or he who has in him the elements of success, complaining that he has no time for study. As soon would you hear him lamenting that he had no opportunity to breathe, for study to the really successful man is as essential as breathing. Of all the miserable quibbles to which men will resort as an excuse for duty unperformed, that of "no time" is the most contemptible. Who are these men with no leisure? Are they the dentists of large practice? No, for whenever and wherever you meet a really successful practitioner you will find him a reading

man; one who has pleanty of time to keep abreast the advance of thought. It is this very study, this constant comparison of the views and methods of others, that makes him successful. The men whose names are best known in our literature are those who have large private practices.

I might make out for you a list of the names best known in dentistry, and you would find all of them men with large private practices, who yet find time to read their professional literature, to lecture in colleges, to make exhaustive experiments, and to write frequent articles for the journals. There is no complaint from them of a lack of time for study, and they are the successful men of our profession. They are studious men because that is their professional life, and through their studies they have conquered success.

It is the men of small caliber who have "no time." It is the dentist with a practice of a thousand dollars a year who cannot find leisure for self-improvement; these are the ones who, if they subscribe for a professional journal at all, must have one which contains no long articles. It must be made up of extracts and pithy sayings; of recipes and specifics. These men have "no time" for the study of complete disquisitions upon any subject. One journal is quite enough for them. They cannot possibly find the time to read two.

The successful man finds plenty of time for reading. Not a book on dental subjects is issued that he does not carefully study. It is this that has made him what he is. And yet, from the men at the very tail end of dentistry we frequently hear the complaint, "Oh, I cannot subscribe for this or that journal. I have not the time to read those which I now take." At the tail such men are now, and at the tail they will always be found.

Sometimes we hear the excuse from dentists that it costs too much to take dental journals, and to buy dental books. They really cannot afford it. Do you remember the words of the author of the Biblical Proverbs? "There is that scattereth and yet increaseth; and there is that withholdeth more than is meet, but it tendeth to poverty." The dentist who denies himself the proper instruments with which to do his work will starve his practice, and his patients will leave him for the one who has better facilities, and who will, therefore, be enabled to give better satisfaction. The practitioner who shuts

the avenues of professional information is a worse economist than the other, for he deliberately robs his patients of that which they have a right to expect, and denies them that which he should be competent to furnish them.

The successful dentist is a constant attendant upon society meetings. It is there he meets his brother practitioners, measures himself by their standard and is stimulated to higher endeavors. He hears the methods of others discussed, and learns the best. All the new ideas are introduced, and he reaps the benefit of the years of experience of the best men in his profession. Quacks never attend society meetings, but I challenge you to produce the name of one man who has won even a moderate reputation, and who is not a frequent attendant where dentists are gathered together. I defy you to name one dentist who has been an attendant upon society meetings, and who has tried to intelligently follow the papers and discussions, who will not solemnly declare that he has been directly reimbursed many times over for the expenditure of time and money that these meetings demanded. Success in practice cannot be attained without the interchange of ideas and methods that is only secured at professional assemblies. You will find it a direct result of your attendance of society meetings that your fees will become larger, through your ability to do better work. It is not dishonest to obtain heavy fees, if only your work is commensurate with your charges. Men can get just what they are worth, for there are many patients who desire the best, and who are ready and willing to pay the highest fees for the most valuable services. The faithful dentist strives to excel by improving every chance to obtain information, and pecuniary success follows as the night the day.

The successful dentist is an honest man. He not only strives to be the best informed, but he sedulously studies to give to every patient the benefit of his whole skill. I am well aware that there are times when the brain and hand are tired, and the temptation is almost irresistible to take the easiest road for one's self, regardless of what is best for the one who has entrusted himself to our care. A cavity is difficult of access, and labor for the overstrained muscles might be saved by careless excavating and a hastily inserted filling. Just at the critical point in an operation a leak in the rubber dam is discovered, which has flooded a partially filled tooth. It would be so easy to finish with a plastic make-shift that tired nature pro-

tests against the honest course. Or, at the close of a protracted operation it would be so much less labor to end the filling when it is flush with the margins, instead of continuing the work until the gold is carefully built over and around the frail, infirm walls, thoroughly protecting them from injury, that we are tempted to stop midway. This is not the road to success. If the dentist is weak enough to yield to evil thoughts and suggestions, he may be sure that the fault will return to plague him when it has long been forgotten. If he once gives way to the allurements of his evil nature, the next lapse of integrity will be easier, and the down-hill road entered upon it will be but a little time before he will find himself a confirmed, slovenly operator, and his reputation for honest work will be irretrievably ruined. His patient pays him for his best services, and the dentist who does not in every case give all that he constructively contracts to give, is a cheat and a fraud. He has sold a thing which he refuses to deliver, and he may be sure that his patient will sooner or later find him out, and he will reap the reward of his dishonor in a diminished practice and a tainted reputation.

The successful dentist is a man who is neat in his personal habits. Refined people will not twice visit the man whose finger nails are in mourning for his departed cleanliness, nor whose person is reeking with the fumes of the putrefying exuviæ from his glandular system. If he be a sloven in dress, the inference is a fair one that he will be the same in his work. He will not go to the chair wearing the same coat that he wears about his other avocations. He will carefully, and even ostentatiously, wash his hands before going to a new patient. No one wishes the saliva of another introduced into his mouth upon the unwashed fingers of the dentist.

Not only will he be cleanly in his person, but all his instruments will be bright and shining. Not a speck of dirt will be found upon the points of his excavators, the remaining filthiness of his last operation. His office furniture will be carefully brushed, and his carpets scrupulously swept. His office fixtures may be plain, but they will at least be in perfect order. Above all, his spittoon will be thoroughly washed after every time of using. The least suspicion of blood about it will be quite enough to disgust refined people, and send them away to return no more. I once received a lesson that is not yet forgotten, when I was told by a patient that a

lady of an excellent family, and one which I was very anxious to secure, had visited me at the recommendation of the relator, with the view of placing herself under my care, but that the sight of a bloody napkin, which my office girl had carelessly left in an exposed place, but which had not met my eye, caused her to leave me in disgust. You may be sure that I have kept my eyes open for such offensive exhibitions since that time.

The successful dentist will be careful and fastidious in his talk. He will not introduce offensive subjects in conversation, and he will strive to clothe his thoughts in well selected words. He will not be affected or priggish, but he will strive to speak grammatically. Educated persons will not seek the society of those who are continually offending propriety by an exhibition of illiteracy and boorishness. Above all, the successful dentist will never indulge in vulgarity, even though his patient may be coarse and unrefined. Every one expects that a professional man will be grave and decent in his professional demeanor. The gross remark and the indelicate story, if indulged in at all, will be reserved for the time when he is not engaged in professional duties.

The successful dentist will be tender and sympathizing in his demeanor to those who are necessarily made to suffer at his hands. It is but the natural consequence that he should become inured to scenes of woe and pain, but he will be careful to avoid exhibiting it. It is his daily duty to cause suffering, and he will become hardened to signs of agony which would move the unprofessional eye to tears. But though he does not feel the woes of his patient, he must not fail to express the tenderest sympathy. He will carefully avoid and faithfully guard against the natural hardening of his feelings, and will strive, as far as possible, to keep his sympathies alert. But if, unhappily, he becomes so habituated to scenes of suffering that his tenderness is exhausted, his patients will not find it out. Nothing so engages the confidence of the weaker part of his clientele as to receive the impression that the operator is tenderly alive to all the pain which he unavoidably causes. He will show an earnest, careful, anxious interest in the welfare of his patients, and give them reason to believe that he will care for them as tenderly as though he were a brother. In making examinations, he will assure them that he will be as tender as though it were his own flesh and blood that was to suffer by any carelessness, and he will then so

conduct his manipulations as to preserve the confidence thus gained.

The world is crowded with the suffering, and no dentist can, without unduly sacrificing himself, allow his sympathies to be too deeply engaged in any case, but his manner must never betray him. He must depend chiefly, of course, upon his actual skill, but he will find that not one in twenty is competent to judge of his technical ability in any other way than by experience, and so his early patients must largely be won by his manner. The majority will be governed by the care and devotion that he exhibits, and will form their opinion of him and measure his services by the details of routine transactions. But the dentist will be careful not to let this degenerate into a semblance of weakness and indecision. With all his gentleness he will be firm and determined, and will endeavor to sustain the weak by his exhibition of mental strength. His will be the hand of iron, covered and masked by the glove of kid.

The dentist who proposes to attain to a good practice will be careful how he speaks of his brother practitioners. He will build upon his own foundation, and not by tearing down the reputation of another. The temptation to disparage a rival is sometimes very great, but let me ask if you ever knew any one to reach eminence who habitually indulged in this habit? Patients soon learn to distrust one who is continually attacking the reputation of his brethren, and set him down as an envious, malicious, untrustworthy maligner. There is a love of fair play implanted in the breast of almost every one, and if an absent and defenceless brother be attacked, the sympathies of a right feeling patient are sure to be enlisted in his behalf, and the chances are that the backbiter will lose and the maligned dentist gain a patient. If a practitioner is on bad terms with his professional brethren, it argues that there is something wrong in himself. Either he feels his inferiority and is envious of the superior attainments of his neighbor, or his own disposition is malicious, and he would wontonly inflict injury on others. In either case the impression made upon his patient is bad, and the offending dentist will himself be the greatest sufferer from his own indiscretion.

The successful dentist will be a good business man, and will not allow his bills to be too long unpresented. The best time to remind the debtor of his indebtedness is when it is fresh in his mind, and

before it shall have passed from memory. More disputes are engendered by a long delay in presenting bills than from any other business cause. As soon as a series of operations is concluded, a statement will be sent, that no future misunderstandings may occur. In no case will this duty be delayed longer than the first of the month succeeding that in which the work was done. If immediate payment be not urgently desired this fact will be conveyed to the debtor, and he will be made to know that the statement is rendered that errors, if they shall have occurred, may be rectified before the particulars shall have been forgotten. The professional man will not be the less respected for asking prompt payment. He has rendered faithful service, and now he is entitled to his just reward.

There are many other qualities which the successful dentist will possess, but they may all be summed up in saying that he will be an earnest, industrious, studious, active gentleman, possessed of self-respect and respecting the feelings and right of others. He will so conduct himself that he shall win the honest regard of good men and women. He will be the true professional man in all the relations of his life, remembering that there is something higher, nobler, more worthy the best exertions of man, than the mere acquisition of money or the gaining of that notoriety which so many consider equivalent to an honest, well-won and modestly supported reputation.

DRIVING WHEELS AND STROKES IN A DENTAL ENGINE.

BY WILLIAM HERBERT ROLLINS.

The point on which I wish to speak is the importance of being able to vary the stroke and change the speed of a dental engine to suit the build of the person using the machine, and the particular work to be done. I shall confine my remarks to the Bonwill type of engine, as I should not care to use any other.

The pedal stroke in this engine is too long for the comfort of most operators. A tall man usually likes a long stroke, just as in walking he takes a long stride. For a short man the stroke should be shorter. The first point on which I wish to insist is, that the machines which a man uses should always be constructed to accord with his own structure. Unless this is done the amount of fatigue is unnecessarily increased.

The second point is, that in an engine with a high speed, you cannot adapt the speed to the work to be done as the engines are now made.

For example, with the strokes as rapid as is consistent with comfort, the speed is about right for the small burs ; but if we use a sandpaper disk of an ordinary size, say three quarters of an inch in diameter, it is almost impossible to run the machine slow enough to avoid unpleasant heating of the tooth and injurious expansion of the filling.

To modify the engine so that it shall not have these objections is a very simple matter, but one which the manufacturers have declined to do for me. My old engine is arranged to embody these changes in the following manner :

Turn off one side of the driving wheel till a flat surface is reached, and then fasten a smaller wheel, about eight inches in diameter onto this face.

Cut off the end of the hand-piece and extend the spindle enough to have a pully with a double groove.

Cut off the stud on the driving wheel, and in its place fasten to the wheel a bar of iron having a slot in which the stud can move. In this way the stroke can be varied from, say, four and a half inches to two inches, to suit the build of the operator. These changes are not expensive and are quickly done.

Reports of Society Meetings.

CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

REPORTED FOR THE INDEPENDENT PRACTITIONER.

A regular meeting of the Association was held in Newark, N. J., on the evening of Dec. 20, 1886. After the transaction of the usual routine business the President, Dr. B. F. Luckey, called upon Dr. W. C. Barrett, of Buffalo, N. Y., for the paper of the evening, "The Elements of Success." (See page 235.)

DISCUSSION.

President Luckey—Gentlemen, you have heard the reading of this delightfully interesting paper. It is now open for any remarks you may have to make upon it.

Dr. Watkins—Mr. President, Dr. Barrett in his preliminary remarks said that he did not know whether his paper would be instructive or not, and I want to say that I think it is instructive, and that I am extremely glad that he presented this subject. I wrote a paper upon it myself at one time, which now I am ashamed to think of. It was then classed as rather elementary, and now, after hearing the paper of this evening, I am more than ever convinced that it was a school-boy production. This paper is the finest thing I have ever heard on the subject. It is nearly perfect. I move you, Mr. President, that we return a vote of thanks to Dr. Barrett for this most admirable paper.

Dr. Watkins' motion was carried.

Dr. Pinney—Mr. President, I do not see how there can be much discussion over this paper. It strikes me that its statements are so perfectly true and so well put that we cannot find any fault with it if we desired to. I only rise to commend it, and to say that we cannot but accept as true what he has so delightfully said. It is a pity that a greater proportion of dentists in practice do not follow the course that has been marked out in the paper, both in their manner of practice and in their connection with societies. We see many dentists' offices that are in such a positively filthy condition that it is incomprehensible how they can work themselves, or how their patients can tolerate it. If more cleanly habits were cultivated and the medicine bottles kept shut up, I think our patients would not accuse us so often of smelling like dentists.

Dr. Dean—Mr. President, it is quite true that there can be no discussion of this paper. Nothing can be said, because the subject is exhausted. But I would like to mention one incident in my own knowledge, that may perhaps clinch a point or two made in the paper. A dentist in my town has lost a number of patients, simply because his finger-nails were neglected. One lady told me she passed his house and saw him leaning with his hands on his front gate, and although she was intending to go to him for some work, when she saw his finger-nails she changed her mind; she never could go near him. Yet I know that man is a good operator.

Dr. Atkinson—One defect in the paper is that it does not sufficiently show the importance of having your intellect well stored with all that has been said, and then giving it out of your affec-

tions, not through so much of rule, but just as occasion may demand. When you say you love your neighbor, do not say, "Oh, God! how I love you!" but just go right at it. And if we love our profession, that will be the way we will do it. To do the best we can for our patients, and that is what we are required to do, demands all our understanding under the highest illumination. But do not have so much paraphernalia and so many rules and systems; just obey your interior impulses, and the law of your own sense of justice. It is not the head but the heart that makes the dentist, and that guides all the mechanism and all the ins and outs of his operations. Dr. Barrett knows what he has said there, and he must have made a good many mistakes to find it out.

Dr. Stockton—Mr. President, I am very glad indeed to hear this admirable paper from our excellent friend, Dr. Barrett, to-night. It is true that there are not two sides to such a question. It is also equally true that what is one man's success, or one man's ideal, is a source of failure to another. We start out in life more or less fully equipped for our work, and we succeed or we do not. The success of one man, according to his ideal, would be complete failure to another. I do not believe in any such nonsense as that the affections of your heart make you a good dentist. It cannot be done in that way. And Dr. Barrett left out of his list of requirements *the* element of success. I do not care if a man has the affections of the world in his heart, I do not care if he is the most polite man that ever lived and wrote a book on politeness, he will not succeed as a dentist unless he knows how to do good dentistry.

Dr. Osmun—Mr. President, it seems to me that the gist of this paper is simply consecration. The act of consecration is but a moment; the fulfillment of the consecration is a life's work. I believe also in natural ability. We have natural musicians, natural artists, natural mechanics, and natural this, that, and the other. I do not believe there was ever a man who did not have a natural talent for art who became an artist. He may learn to mix colors and apply them by given rules, but that does not make him an artist. Neither do I believe that any man who has not music in his soul will ever make a musician, in any proper sense of the word, no matter how excellent a teacher he may have or how long he may study and practice. And so I believe that some natural ability is necessary to make a dentist. I have, in my little experience with

different students in my office, observed that the one who has natural ability acquires things rapidly and accurately, and does not have to be told again and again to do the same thing; and this is because he has a natural mechanical turn of mind. Another student never learns anything easily, but must be shown over and over again, and every case he makes precisely like the one preceding. Such an one will never be successful. He may be honest, may have the love of humanity in his heart, may be kind and sympathetic, may have the politeness of a Chesterfield, and yet be a failure as a dentist. Possibly he might make a fine orator, a good physician, an excellent carpenter, a successful farmer, or fruit raiser, but he cannot be a dentist. It requires a certain combination of natural talents which can never be obtained; they are given to man by his Creator, and he must develop them by study and practice, and by actual every-day work. Then when he has gone, there will be a good man gone, and a good dentist gone.

Dr. Kingsley—I listened, Mr. President, with a great deal of interest to the paper that has been read and the remarks that have been made upon it; and though some of the speakers have said that the essayist had exhausted the subject, and there was little or nothing to be said, no criticism to be made of the paper, but only commendation to be offered, yet while it was going on I was revolving in my mind one sentence that was used, and that was referred to indirectly by our friend Osmun. The statement in substance was that there was no such thing as genius; that what passed for that was simply industry. Gentlemen, that statement of Dr. Barrett is simply bosh. He doesn't mean exactly that either.

Dr. Barrett—Yes he does mean it.

Dr. Kingsley—Then I am sorry for him, because there is such a thing as genius quite irrespective of industry. There is a patient industry of the most untiring kind that never accomplishes the object in view at all. You must have natural faculties, or predisposition, or peculiar temperament, or what is called genius. Take two persons, one having simply patient industry, and the other possessed of this genius, and I leave it to any of you to choose which of the two you would prefer to make a dentist out of. It is not necessary for me to decide that question.

Dr. Barrett—Will you define genius?

Dr. Kingsley—I have already defined it as consisting of natural

talent or faculties, or predisposition to the accomplishing of certain objects. I do not think it is necessary to go into the definitions of the books; I think you understand perfectly what I mean. It is said, I think with a great deal of truth, that no great novelist or author who has excelled in portraying human character has ever been able to make a hero or heroine greater than himself or herself; that their hero is always a picture of self—the ideal character that they present is their own character.

Dr. Barrett—Mr. President, if there be any bosh in the remarks I have made concerning genius, the acme of bosh would seem to be Dr. Kingsley's definition of the term. I restricted the meaning by the word "intuitive," and in this sense genius is supposed to be that innate knowledge which does not come from study, or from industry, or from perseverance; it is understood to be the natural qualification, the inborn skill that is inherent in the man, and he who is endowed with genius is supposed, in the common acceptation of the term, to be one who is beyond the necessity for the study which is indispensable to most men. I do not believe such a man exists. I do not believe men are endowed with the instinct of the birds of the air, that are capable of building their first nest as perfectly as those which they build afterwards. We know very well that the men who have made the greatest success as artists, lawyers, orators, sculptors, musicians, have been men of untiring industry. If Dr. Kingsley had pursued the calling of a sculptor, he himself might have attained no inconsiderable fame in the world of art. He has shown some talent in that field already, but I do not think he will claim to be endowed with such genius as would enable him, the first time he attempts it, to present the acme of all the conceptions and ideas which were in his mind. I think he will say that if he were to set himself at work and study for some years in that direction with his usual industry, he himself could improve upon himself. Genius, as I understand it, is that which places a man beyond the necessity of study. I do not think such a man exists upon the face of the globe.

I certainly hold that young men are not all endowed with equal ability in any particular line. Some are naturally more quick of perception than others. There is such a thing as talent in, and adaptability for, any special work. But talent, ability, capacity and aptitude are widely different from the intuitive genius to which

reference is made in the paper. I do not believe that any man is endowed with a special intuition that will take the place of faithful study and hard work.

Dr. Atkinson—We are dealing with principles. What are they? To define a principle puts the best definer to his trumps. What is genius? It is the inherited possibilities and molecular experience of ancestral endowment, or else civilization does not amount to anything. There is registered in the organism of individuals a tendency to see clearly and know; they are endowed, not with knowledge, not with all the paraphernalia of knowledge, but with educational faculties that make them seers. I was brought up in the church, believing that the clergy really had what they pretended to have, the divine light of wisdom; and when I found they had been feeding me taffy, I was all broken up. I had put my trust in that which was not to be trusted. Where then shall we put our trust? We must learn to take things as we go. That is what ails Dr. Kingsley and myself; we live in the present, and we feel as young as if we were boys. We are boys in our affections and purposes. As was wisely said in the paper, read all the journals. It may be that you slip some grain through the meshes of the sieve, but it will not all escape, and you will gain some advantage.

President Luckey—I would like to ask Dr. Barrett what he would call Blind Tom, with his peculiar musical talent; is that genius?

Dr. Barrett.—I believe, Mr. President, that there is no law which is not proved by its exceptions. It has been so stated more than once. I might retort upon the President, if I thought he asked the question seriously, by asking him if music, which has been called divine, should not be esteemed the lowest and most debased of all the callings to which man's attention may have been directed because an idiot may excel in it. Blind Tom was possessed of musical aptitude, but he was forced to learn his instrument as well as another. That he learned with greater facility was largely because his whole soul and being was devoted to and absorbed by it, through the love which he had for it. If another was as much enamored of dentistry he could not avoid excelling in it.

After the close of the discussion the essayist exhibited some specimens of prehistoric dentistry and other objects of interest to professional eyes. He said: Those who have read the INDEPENDENT

PRACTITIONER are aware that Dr. Van Marter, of Rome, Italy, has made an exhaustive study of ancient dentistry, a matter of interest to every dentist who has the welfare of his profession at heart. It has been supposed that dentistry was a modern art or science. It is not at all modern, so far as the mechanical portion of it goes. The ancient Etrurians, who have given their name to Etruscan gold, are represented to us as being a very wonderful people. All of our records of them are obtained from their graves, and are necessarily few because of their custom of cremating their dead. But persons of distinction were sometimes buried in elaborate tombs. Some of these graves have been recently discovered, and Dr. Van Marter was enabled to secure the contents of one. It was the custom of that people to bury with their dead the treasures dearest to them, and those things that in life were held most valuable, as many of the barbarous nations of the earth have sacrificed that which was most prized by those who had passed away. In this way they put into the graves of their dead the precious records of the arts in their time, and happily for us the opening of these graves has revealed to us the exact condition of the mechanic arts of that day. We have not been able to decipher their language, specimens of which are found; but I am going to show you some specimens of their dentistry. I hold in my hand two pieces of dental art that are two thousand five hundred years old, that date back to about the time of the supposed founding of Rome, seven hundred years before the Christian era, and which are among the earliest relics discovered. Here are three lower teeth, a bicuspid, a cuspid, and a central incisor, which are held together by a band of pure gold, not soldered, but beaten out of a solid piece of gold, the bands enclosing these three teeth all being connected by a bar of the same metal. The whole piece seems to have been made for the purpose of holding in position one of these teeth that had been implanted, or loosened by disease. There is also an upper incisor with an artificial crown. Here are also some decayed teeth from the same grave, that will show you that caries was as rife two thousand five hundred years ago as it is to-day. There are also some gold spiral ornaments for the hair, of exquisite workmanship. These teeth are excessively frail, and probably would fall in pieces if they were dropped upon the floor, but I am going to do what I have never done before in a society, pass them around for your examination. Gentlemen, you

are looking upon the very earliest records of dentistry of which the world has any positive knowledge, and it is to the liberality of a New York dentist, who paid the purchase money, that you are indebted for this privilege.

"TO BE OR NOT TO BE."

BY DR. JAMES G. PALMER.

The Central Dental Association of Northern New Jersey had a "grand talk" at its regular meeting, March 21st. The invitations gave a list of those high in our profession who were to speak on Dr. Kingsley's paper, which was the first thing on the programme, and was entitled "The Present Relation of Dentistry to Medicine." Most of those invited were on hand, but strange to say the discussion was altogether one-sided.

Dr. Kingsley's paper was based upon the one read before the New England Dental Society, which has provoked so much discussion. In substance he said: "Medicine in its broad signification is applied to the entire healing art, and comprehends everything under the sun for the relief as well as the prevention of physical suffering. In the popular mind, however, 'medicine,' and 'medical practice' mean the practice of a physician, and as such they are only one branch of the healing art. No one disputes that dentistry is also a branch of the same healing art. Dentistry and dental surgery are constantly used as synonymous terms. Dentistry is a great deal more than dental surgery. The latter is simply one branch of dentistry, and is that which, if taught in medical schools, would properly become a specialty of surgery.

"I have heard it gravely stated before a dental society that 'there are but three professions, law, theology and medicine.' It is absurd in this day of progress to say that no new profession can arise, and that every new development of science must of necessity come within the scope and become a specialty of one or other of these three professions. I want to reaffirm the declaration that 'dentistry in America is practically an independent profession, and not subordinate to any other,' and to maintain that declaration I now devote myself."

After referring to the many dental colleges, their graduates, the studies taught, their certificates, etc., he said, "If dentistry had any distinct parentage, it was not in medicine. We recall the historic fact that it originated with barbers, and in no sense with the medical profession. Because medical graduates have adopted dentistry as a vocation, does not make it a specialty in medicine. One of the most distinguished of living dentists stepped out of a gun-smith's shop into dentistry. Another prominent one was once a tailor, and still another served his apprenticeship in a wagon shop, and not one of these had an intermediate medical training. What reciprocal interest is there between the practitioners of medicine and the practitioners of dentistry?

With reference to the recent anniversary meeting of the First District Society, he said that of the five thousand M. D.'s in New York City and vicinity, not one, so far as he could learn, was present, nor has he been able to find the slightest allusion to it in any medical journal. After some eulogium of the medical profession, he referred to the coming Medical Congress in this wise: "The section is no longer proscriptive. If it is the policy of the management to admit all reputable dentists, irrespective of special invitations, the whole profession will rejoice." He closed by saying, in regard to the proposed International Dental Congress, that "it is but justice to those interested in this movement that certain reports be corrected. It has been stated that this movement was hostile to the dental section of the Medical Congress. Nothing could be farther from the truth. There is no hostility on the part of the American Dental Association toward that section in the Medical Congress, nor is there ever likely to be."

Following Dr. Kingsley came Dr. J. Foster Flagg with a capital address. He asked to defer his paper till later, and Dr. C. S. Stockton was called upon as the representative of the opposition.

His first statement, however, showed decidedly that he was "on the fence." "I do not know," said he, "that I am on the other side; you take that for granted. I have never taken any special position one way or the other, in regard to this subject." He spoke of Dr. Kingsley's paper as appealing to the vain glory that is in ourselves, and as it had appealed to our baser interests it was scarcely worth his while to say much. "Will all that has been said, or that may be said, change the status of dentistry to-day?

No. We will go on just as we have gone on. The men who started out humbly in dentistry, if they did wrongly did no especial harm to anybody. Those who were of very meagre knowledge, who knew scarcely anything about dentistry or anything else, entered into it and in a measure established dentistry, and then in a little while came into it men who were not ignorant, and they established dentistry upon a better plane and made it what it is. The more a man knows, the better dentist he will be. I claim that a man who has been educated to administer remedies, no matter of what kind, for the relief or cure of the diseases of human beings, and who practices on the strength of that education, is certainly practicing medicine as much as it is possible for any human being to do so."

Following Dr. Stockton came Dr. W. H. Dwinelle. As a veritable M. D., one entitled to it by reason of study and passing an examination, as well as by reason of his years, his position commands respect. Briefly, he referred to "the hope and expectation of many, if not a very large proportion of the founders of our profession, of Harris, of Townsend, of Hayden, of Hudson, of the Parmlys and others, that the day would come, which I believe is now dawning, when our profession would be regarded as an independent one, and not a specialty of medicine. Dentistry is composite, broad, and far-embracing in its character. With many other departments of art and science and mechanics, it includes medicine, but it is not included in or absorbed by medicine, nor is it a specialty of it, any more than it is a specialty of the many supplementaries which contribute to its establishment. It is no argument against us to say that as we could not do without medicine, therefore we are specialists in it. We may apply the same argument to chemistry, histology, mechanics, metallurgy, etc."

He gave way to Dr. Flagg, who was welcomed uproariously. (The ladies graciously smiled their approval, for they were well represented.)

He first went back some fifty years, for he said that Dr. Dwinelle's remarks had carried him to reminiscences of Harris, Hayden, Westcott, and the Parmlys, "when those gentlemen expressed the idea that, as in fact we were nothing, it behooved us to become something; and I think we have. I don't know that I can say anything about the present relation of dentistry to medicine, because I can-

not see any. This thing was once worked over by the American Medical Association, and they said there was nothing in it.

Then followed his paper on "Dentistry *more* than a specialty in medicine." He spoke of what has already been alluded to, the decision of the M. D.'s that "dentistry did not pertain to medicine," —of the rapidity and resistlessness of its advance to its position among the distinctive callings of the day, of its being unlike in any particular any other profession, that all attempts to incorporate the teaching of dentistry with that of medicine has proved utterly abortive, and of the fact that every university or medical college which had attempted the work had found it "expedient" (their own word) to confer as the mark of a so-called "specialty"—the distinctive title of D. D. S. or D. M. D. He paid his respects to the dental section of the Medical Congress in an emphatic manner, and returning to the main question said in substance, that dentistry is said to be a branch of medicine. When claims of branchhood were officially investigated by the so-called parent-tree, the verdict was against them. This was accepted, and dentistry threw out roots, gained a trunk, sent out branches, and grew to become a tree of fair proportions. This attribute of root development is strangely overlooked, and all the famous growth that comes from it is quietly ignored. Medicine and dentistry are akin, because both work for suffering humanity. But does that make of dentistry a "specialty."

Anatomy! Of what avail are pelvic measurements? Why should a dentist be drilled exhaustively in studying the muscles of the legs and arms? But such anatomy as dentists need they should know thoroughly; the more, thus far, the better dentists.

Physiology! A fair amount of general physiology is quite sufficient, but *dental* physiology they cannot know too well. Do they get dental physiology from medicine? Far from it. And so with chemistry and metallurgy.

Materia medica! There we can but laugh; the United States Dispensatory enumerates eight or ten thousand salts, roots, tinctures, ointments, etc., etc., to dentistry practically worthless. Not a tincture is prepared as dentistry would prepare it. Pastes, tinctures, solutions and compounds in daily use by dentists are not mentioned, and yet on knowledge of all these depend the comfort of the patients and the success of the practitioners of dentistry.

There is in every dental class that graduates, men who will teach dentistry until all thoughts of any dependence, except independence, shall have been forgotten.

This is but a brief outline of a most excellent and well written paper, view it from whatever standpoint one will.

Dr. John B. Rich then followed, beginning also with reminiscences of fifty years ago. Among the many good things he said we remember the following: "When dentistry has established itself as a distinct science, who are they that claim that medicine is the parent of dentistry? Not the men who practice medicine, but a few dentists who are ashamed of the profession by which they earn their living.

Dr. W. H. Atkinson was then called on, and after he had gone over the subject, in his own "Atkinsonian" way, said he was "with and against every speech that had been made."

Dr. E. S. Niles, of Boston, was called for. He was the only one, if my memory serves me right, who recognized the presence of the ladies of our profession and said, "ladies and gentlemen." He had not considered the subject so much since the New England meeting as he had this evening, and must take the medical side of the question. "We agree that dentistry is a healing art." Taking the studies of both professions, he drew the conclusion that dentistry must be an outgrowth of the medical profession; among other things he said, "who first dissected the fifth pair of nerves? Was it a member of the dental profession? Upon what is based our knowledge of pathology? Is it upon works in dental literature or in medical literature? I have said the medical profession have need of us; they are ignorant of a great many points on which we could enlighten them. They have made a great many cruel thrusts at us indirectly; but the time is coming when they cannot afford to do it; yea, it has now come."

Thus ended a memorable meeting for Jersey, and apparently the end is not yet.

NEW YORK ODONTOLOGICAL SOCIETY.

Reported for the Independent Practitioner.

The April meeting of this society was held on Tuesday evening, the 12th ult., in the parlors of the Academy of Medicine, Vice-President Dr. J. Morgan Howe occupying the chair.

The President, Dr. E. A. Bogue, read a voluminous but exceedingly interesting paper written for and sent to the society by Dr. I. B. Davenport, of Paris, France, on "The Significance of the Natural Form and Arrangement of the Dental Arches of Man, with a consideration of the changes which occur as a result of their artificial derangement by Filing, or by the Extraction of Teeth." Accompanying the paper were a great number of large maps and many plaster models, illustrating the ideas advanced by the author.

The paper discussed the benefits derived from a perfect arrangement of the teeth in their occlusion, and the annoyances caused by imperfect articulation. The natural form or arrangement of the teeth was declared best for use and for preservation. The character of the enamel, presenting a hard, smooth surface and completely covering the crowns, was intended for service and protection.

The nearer perfect the articulation, the firmer become the teeth in the jaw. The doctor does not favor extracting as a means for prevention of proximal decay, nor does he consider proximal contact a dangerous condition, or tending to invite caries. He does not find that the loss of a single tooth materially changes the general articulation, unless it happens to be one of the six front teeth. If a lower tooth is removed, the arch will become somewhat flattened and the upper front teeth more prominent, yet the contact will again be complete. Extraction occasions contraction of the dental arches, as shown on maps. Removing the first molar previous to the eruption of the second molar, deprives the mouth of much masticating surface and tends to a tipping forward of the back teeth. Results from extraction of bicuspids, such as irregularity and contraction, were illustrated by diagrams and models. He considers time a good regulator in many cases, and thinks harm is often done by extraction. Before the second molar appears (if removal is necessary) is the safest time to extract the first molar, and is productive of less harm than at other periods. Unsupported teeth are sure to move until support is secured by contact.

Upper molars rotate when moved out of normal position, the posterior cusps inclining outward and forward. Extraction causes contraction, shortens the bite, rotates molars and bicuspids, and lessens masticating surface. There is no sense in extraction to relieve crowded arches with a view of anticipating caries. On the contrary, the teeth can be better kept where contact is general.

The doctor pities those who have lost their first molars, and still more does he pity those who have lost only the two lower first molars, as in the latter case the lower arch becomes contracted and the upper teeth more prominent.

The paper strongly condemns filing between the teeth, which practice it deems pernicious, and gives reasons for so stating. The filed surfaces often are painful, and are more likely to again decay, the decay in such instances extending to and beyond the margin of the gum. They cause annoyance in masticating, are difficult to keep clean, and besides, the spaces thus made close up, leaving them in a worse condition to treat than before. To parties who have suffered the annoyances caused by having their teeth filed apart, artificial teeth may be considered a boon.

Physicians should understand that many physical ailments may be traced to imperfect articulation and imperfect mastication, often the results of injudicious extraction and filing of teeth.

DISCUSSION.

Dr. Geo. S. Allan wished to discuss the paper at length, but was unable to remain later. He took exception to some of the statements of the writer, believing that there are cases where teeth in an overcrowded condition can be better preserved by judicious filing than where contour fillings are made. He hoped the discussion of the paper would be continued at next meeting.

Dr. F. Y. Clark intimated that the paper and diagrams pictured the results of filing in the worst form. He could refer to many instances where filing or cutting away by the Arthur method, properly done, had been the means of saving many teeth. He liked the paper, although not fully in accord with all its sentiments.

Dr. J. W. Clowes said that the paper was a grand effort to uphold wrong ideas. It had portrayed the worst results, or odds and ends of bungling practice—extreme cases; yet it was evidently intended to convey the idea that such results are the general fruits of good operations as well. This, Dr. Clowes declared, was not the case. He knew from long experience that to make separations properly and intelligently was good practice, and a means of preserving the teeth. His patients were convinced of this fact, and it seems strange that all dentists cannot see it in the same light as himself. Where natural spaces exist, no cavities are to be found between the

teeth, but where contact is the rule cavities abound. Separations should be made with judgment, and the double-bevel edge secured, opening freely on palatine or lingual surfaces. Such separations do not favor decay, but on the contrary tend to prevent it, and give opportunities for cleansing. Teeth crowded together leave V-shaped pockets for lodgment of acid-generating secretions, which do the mischief. Preparations of iron and other deleterious agents prescribed by physicians, destroy tooth structure.

Dr. W. H. Dwinelle is disposed to be Eclectic in his practice, but took exceptions to the remarks of the last speaker. To mutilate teeth by filing is to destroy the contour designed by the Creator, the best possible form, and which was intended for service and preservation. He eulogized the paper and complimented the efforts of the author. He objects to extraction except in extreme cases, and favors contour fillings.

At this point it was suggested that, as many guests from other cities were present who probably would not attend the next meeting, the remaining time of the session be occupied exclusively by them, and they were invited to express their views.

Dr. Merriam, of Boston, expressed his admiration of the paper, and fully coincided with the views of the author.

Prof. E. T. Darby, of Philadelphia, thinks there is too much extracting done for purposes of regulating teeth and for preventing decay. He said that a somewhat prominent dentist of Philadelphia has a hobby for removing first permanent molars, doing this on every occasion possible, and apparently on general principles, without taking into consideration circumstances or conditions. Another dentist there runs riot on the subject of removing lateral incisors to relieve crowded arches, and Dr. Darby can readily tell by casual observation when such parties have fallen into this man's hands. He thinks that these two dentists do great harm, and feels that it would be a good thing for Philadelphia if they were—somewhere else ! He presented a plaster model of a mouth, showing ill results from injudicious extraction of the first inferior molars.

Dr. J. T. Codman, of Boston, spoke of the essay as a grand paper, containing a world of truth. He thought it the best paper ever prepared by a dentist, and he was in full accord with all it expressed. The doctor was very emphatic in condemning the practice of separating teeth.

Dr. S. H. Guilford, of Philadelphia, in a very neat address expressed his views of the subject under discussion. He would exercise his best judgment instead of following fixed rules, and be governed by circumstances. He believed that in some cases benefits were to be secured by timely extraction, while sometimes extraction proves an injury. He would carefully consider cases presented for treatment, and do what seemed best, or necessary in each. Dr. Guilford referred to a certain condition of irregularity portrayed on one of the maps, where the upper incisors protruded forward and the cutting edges of the lower incisors were elongated, reaching the gum above where the teeth were closed. He corrected such deformities by introducing a vulcanite plate to cover the roof of the mouth, making it thick in front, or back of the upper incisors. Wearing such an appliance prevents the molars and bicuspids from coming together, thus inducing them to elongate and permitting the upper incisors to be pressed back.

Dr. N. W. Kingsley thought that too much stress was laid on the slight changes of articulation alluded to, or the loss of the little masticating surface occasioned by the removal of a tooth, or even a little tipping of some of the teeth. Many people eat only on one side of their mouth, and do it well; and where one or several teeth are missing they still masticate their food freely and without inconvenience. He would by no means favor extracting teeth indiscriminately, yet cases occurred where extraction was of decided benefit.

President Bogue referred to the labors of Dr. Davenport, the author of the paper, and his efforts to treat the subject fully. He heartily endorsed the views of the writer, especially in regard to the extraction of the first molars and the use of the file. He had seen among the upper classes of Europe many fine sets of teeth in their normal condition, free from defects, that had not been mutilated by dentists.

Dr. J. B. Rich intimated that these might have been exceptional cases. Persons possessing perfect dentures were usually found among the peasants of Europe, or the uncivilized races of different countries.

A vote of thanks was tendered to Dr. Davenport for his very interesting paper, and at a late hour the society adjourned to another apartment for dental exercises of a pleasant character.

Editorial.

THE AMERICAN DENTAL ASSOCIATION.

A desire seems to be manifest upon the part of many of its most earnest members that there should be no meeting of the American Dental Association this year. We cannot but think that this would be a great mistake, and hope that the subject will be well considered before any decisive action is taken by the Executive Committee. We fully realize the conditions under which the meeting would be held, but cannot avoid the conviction that anything is better than to let a meeting go by default, and the following are some of the reasons that should be carefully weighed.

When an annual meeting is passed over entirely for any reason, it makes a hiatus in the record. What old member does not regret that, even in the youth of the society—in 1861—although the country was then just plunging into the horrors of the War of Secession, a few faithful ones did not meet and hold a meeting, and thus preserve unbroken the list of the annual sessions. And how infinitely less than in 1861 is the excuse for now passing a meeting.

When a meeting fails utterly, and when no effort is made to hold the regular sessions, it argues a lukewarm feeling on the part of the members, and it is very discouraging and disheartening to many of those who have the best interests of the Association at heart.

If no meeting be held, it affords an opportunity for reproach on the part of those who have no desire to see the Association successful. Other societies step into the field and get the attention of the dentists, and draw them away from their allegiance to the old society.

The hour of trial and difficulty is the time when those who are true to the old society should put forth their utmost efforts. In view of the distracting influence of the coming Congress, the Southern Association is making more than usual exertions to obtain a good meeting, and therein the members show the honest character of their allegiance.

Some members of the American Dental Association will not attend the Congress, and are not among its supporters. By what right are they deprived of the meeting to which they annually look forward, and who can blame them, when they see the old organization sacrificed to the international meeting, if they quite withdraw from the former?

An interregnum of a year in the meetings of the American Dental Association means the weakening of its influence upon dentists generally, for it will be an admission that it has not sufficient vitality to hold its own against a meeting which has never been held in this country before, and perhaps may never come here again. Our society should have sufficient vigor to stand in the face of any meeting whatever, and if it be not, it should go to the wall entirely, and be succeeded by an association that is stronger in the confidence and affection of its members.

The Medical Congress meets with us but for this year, while the American Dental Association must be depended upon to maintain the status of dentistry continuously. In this respect it is the more important meeting, and should not be sacrificed to anything whatever. If our dentists cannot decently support both, they should have taken no part in the Congress. Those who are connected with that meeting have no right to offer up our national organization upon its altar.

The selection of Asheville was an unfortunate one for this year, but it was made in the hope that the Southern Dental Society would unite with the American Dental Association in the holding of one meeting for both societies. This the Southern Society declines, and from the society standpoint they are undoubtedly right. Shall the members of the American Dental Association exhibit less loyalty ?

Nothing will be lost by holding the meeting, while much may be gained. If members can go to but one, let them attend the Congress. Those who stay away from the Association will be no worse off than if no meeting were to be held, while those who can conveniently attend both will be so much the gainers.

We are decidedly of the opinion that a meeting should be held, even though it were known in advance that not a dozen members would be present. But the meeting should be at some central point, easy of access, and where there can be no charge of favoriteism in the selection. Niagara has always been the compromise point, and we do not think that a better selection could be made this year; but Cleveland, Detroit, and perhaps other places, would be quite unobjectionable.

It should be primarily understood that the change in locality was solely because of the peculiar circumstances of the case, and the

Association should consider itself in honor bound to go to Asheville next year. It is not best to go south when the chances of a large meeting are in any way doubtful, because it would arouse invidious comparisons. So if the place were changed this year, it should be made a point of honor that the Association go to Asheville next year.

The largest meetings are not always the best ones, and if one be held this year it will be a preparation for the Congress, and will enhance the value of that occasion. Let us not allow the good old Association to be shoved to the wall and its meetings to go by default, but let those who will, meet at some central place, prove their loyalty to our national organization and preserve the succession of its anniversaries.

THE WAITE TESTIMONIAL FUND.

Some time since it was announced that Dr. W. H. Waite, of Liverpool, England, had been obliged to retire from practice on account of his loss of sight. Dr. Waite is well known in America, and the deep sympathy that was felt for him in his affliction was not confined to his English brethren. He is a graduate of an American Dental College, and has, at different times, made visits to this country, where, on account of his high character as a man and his excellent reputation as a dentist, he has always been warmly welcomed.

He has for many years been identified with dental progress, and has long and faithfully served the Midland Branch of the British Dental Association, as its Secretary. To mark their appreciation of him as a man, and to express their approbation of his long and faithful service in society matters, as well as to afford him some assistance in his hour of affliction, his English admirers determined to present him with an address and a purse of gold. The success of the movement was assured from the first by the willingness to serve upon the committee of such men as Sir Edwin Saunders, Sir John Tomes, J. S. Turner, Chas. S. Tomes, Morton Smale, Felix Weiss, Thos. Gaddes and others of the most illustrious of English Dentists.

The editor of this journal saw a notice of the appointment of the committee, and immediately wrote to the editor of *The Journal of the British Dental Association*, enquiring if American contributions would be compatible with the objects of the promoters of the

fund, and expressing the firm conviction that, if an opportunity could be afforded, many Americans would feel a pleasure in subscribing. He enclosed in the letter a communication to the Treasurer of the fund. An answer was very promptly returned from Mr. Arthur S. Underwood, another from Mr. Renshaw, the Secretary of the fund, and a third from Dr. Waite himself. A meeting of the committee had been hastily convened, and the opinion was unanimous that such an expression of sympathy would do more to draw together the dentists of England and America than anything which could occur, and the only regret was that America had got the start of England in an expression of international courtesy and generosity. An editorial of Mr. Underwood, in *The Journal of the British Dental Association,* said: "We cannot imagine anything more gratifying to the object of the testimonial than the proposed graceful expression of genuine and heartfelt sympathy from America."

But the letters also conveyed the information that the presentation would be on April 29th, and the fund must be closed before that time. As the letters were not received until April 5th, there were but ten days for work before the contributions of American dentists must be forwarded. There was no time for consultation or combined action. If anything was to be done it must be without delay. We therefore determined to assume the responsibility, and make the appeal directly. A circular was prepared and sent out to but a few of the prominent dentists of America, with the request to send whatever they desired to subscribe at once.

We were quite aware that it was a great assumption on our part to presume to speak for our American brethren, but the circumstances of the case were an excuse. Had time permitted and a systematic effort been made, there is no doubt that the sum might have been more than doubled. As it is, there will probably be many who will feel a disappointment because they were not asked to contribute. We can only assert that we did not intend to exercise any partiality in sending out the circulars. We simply mailed them to those whose names came to memory, and nearly every one made a prompt, liberal and cheerful response. We did not ask for any sum larger than five dollars, and sent out but little more than fifty circulars.

When the responses to the circular began to arrive in such num-

bers that a measurable success was assured, we sent an ineffectual letter to one who has a better right to speak for American dentists than have we, inviting him to take charge of the fund and transmit it to the Hon. Treas. of the English fund, in the name of the dentists of America. The amount received is Four Hundred Dollars, which, as Prof. Taft declined the pleasant duty, we have remitted to England, with a letter explaining the circumstances under which it was raised. Several subscriptions which have since been received are now held, awaiting the orders of the subscribers.

In closing the matter up, we desire to thank those who so promptly responded, and to assure them that we firmly believe they will never see cause to regret their liberality.

The following is a list of the American subscribers to the fund, arranged in the order in which their contributions were received.

LIST OF AMERICAN SUBSCRIBERS TO THE WAITE TESTIMONIAL FUND.

J. N. Farrar, New York City..	$25 00	W. F. Litch, Philadelphia.....	$ 5 00
Frank Abbott, New York City.	10 00	C. N. Pierce, Philadelphia.....	5 00
Wm. Jarvie, Brooklyn, N. Y..	5 00	James McManus, Hartford, Ct.	20 00
A. W. Harlan, Chicago, Ill....	10 00	W. W. Allport, Chicago, Ill...	25 00
W. G. A. Bonwill, Philadelphia	5 00	H. A. Smith, Cincinnati, O....	5 00
J.W.White,Phila.(S.S.W.D.M.Co.)	25 00	E. T. Darby, Philadelphia.....	5 00
F. J. S. Gorgas, Baltimore, Md.	5 00	James Truman, Philadelphia..	5 00
George L. Field, Detroit, Mich.	5 00	T. T. Moore, Columbia, S. C...	5 00
Louis Jack, Philadelphia	10 00	C. F. W. Bodecker, N. Y. City.	10 00
J. L. Williams, Boston...	10 00	Charles Barnes, Syracuse, N.Y.	5 00
S. B. Palmer, Syracuse, N. Y..	5 00	A. O. Rawls, Lexington, Ky...	5 00
S. H. Guilford, Philadelphia...	5 00	F. H Rehwinkel Chilicothe, O.	5 00
C. D. Cook, Brooklyn, N. Y...	10 00	R.R.Andrews,Cambridge,Mass.	5 00
C.T Stockwell,Springfield Mass.	2 50	W. H. Morgan. Nashville, Tenn.	5 00
C. A. Brackett, Newport, R. I.	5 00	A. H. Thompson, Topeka, Kan.	2 50
R. B. Winder, Baltimore, Md..	5 00	J.H.Spaulding,Minneapolis,Minn.	5 00
W. N. Morrison, St. Louis, Mo.	1 00	T. B. Wheeler, Chicago, Ill...	5 00
L. D. Shepard, Boston, Mass...	10 00	K. B. Davis, Springfield, Ill...	5 00
C. E. Francis, New York City.	5 00	J. Smith Dodge, Jr., N. Y. City	5 00
J.D.Patterson, Kansas City, Mo.	2 00	E. A. Bogue, New York City..	20 00
W. B. Ames, Chicago, Ill	5 00	A. M. Dudley, Salem, Mass....	5 00
Benj. Lord, New York City....	20 00	J. Taft, Cincinnati, Ohio	25 00
W.H.Dorrance,AnnArbor,Mich.	2 00	J. Morgan Howe,New York City	10 00
J. Bond Littig, New York City.	10 00	William Carr, New York City.	10 00

The INDEPENDENT PRACTITIONER—Account of Printing, Postage, Collections, Stationery, Telegraphing, etc..... .....

Total..... ....$400 00

"LET US HAVE PEACE."

To an impartial observer it would appear that the question of Dentistry *versus* Medicine has been more than sufficiently discussed. From the commencement, the controversy has assumed an acrimonious and personal character which was quite uncalled for, and the feeling is becoming more bitter with each rejoinder. He is said to be a foolish man who quarrels with his bread and butter, and the man who foments an insurrection in his own domestic circle is certainly no wiser. Medicine, to say the least, is our closest relative and nearest neighbor, and what is to be gained by provoking an altercation with it is not readily apparent. So far, our mother—or sister, according as we may view the relationship—has prudently refrained from noticing the chip which we are so provokingly carrying on our shoulder, and has left the brawling to us. The controversy can have no decisive end, and we cannot see what good can possibly grow out of it. Certainly, it does not tend to elevate our professional status, or advance professional interests.

To our apprehension, the whole discussion grows out of a misunderstanding of terms. A dentist may practice a specialty of medicine, but he is not therefore a medical specialist. He may practice medicine, and yet not be a medical man. To become the latter, and to belong to the medical profession, he must have the medical degree, for that is the only qualification which medicine acknowledges. Having this, he belongs to the profession even though he does not practice at all.

I am a D. D. S.; my neighbor is in addition an M. D. Very well; he belongs to one more profession than I do. There is a distinguished dentist in New York who, in addition to both these, is also a D. D., and so belongs to yet another profession. He might declare that it is the duty of every dentist to do a certain amount of preaching, and to act as a teacher of the people. This is peculiarly the province of the clergy, and therefore he might insist that no man is fit to practice dentistry who has not gone through a thorough course in theology. Why need we quarrel over these things? Let each pursue his own course, so long as it is a reputable one, and call his practice what he will—dentistry simple, medico-dentistry, dental-medicine, or medicine pure.

Current News and Opinion.

THE AMERICAN DENTAL ASSOCIATION.

Editor Independent Practitioner:

As a member of the American Dental Association, and one who first proposed Asheville, N. C , as the next place of meeting, I feel that the time has come for me to say something in regard to Dr. Field's letter in the last number of this journal. The spirit that prompted me to name Asheville was a desire for the good of the whole profession and the American Dental Association. The place was not an unwise selection. Its accessibility, its natural advantages, delightful climate, beautiful scenery, and its bracing atmosphere make it one of the most desirable places in the whole country, surpassed by none and equaled by few places in the South The assertion that it has an uncomfortable climate and lack of hotel accommodations is quite a mistake. There are several good hotels and numbers of private boarding houses, which entertain summer visitors at reasonable rates. I have spent a month at a time there during July and August, and have a practical knowledge of the matter. The Southern Dental Association met with the North Carolina Dental Society there in 1881, and there was about as large an attendance as I have seen at the American for the past three or four years, and we had no trouble about entertainment. The American Medical Association and other bodies, both lay and professional, have met there and been well cared for. The place is quite flourishing, and is improving rapidly, with a resident population of seven or eight thousand.

There is one passage in Dr. Field's letter which deserves our consideration, and I confess has set me to thinking. It is this: "Will either the American Dental Association or the Dental Section of the Congress be apt to prove a complete success if both are held in the same year, and with so short a time intervening between the meeting?" I must admit, from the present lights before me, that I do not think they will. I have been one of those, from the first, who have never wanted or believed in this Dental Section, and I refused a place in its organization. Good and true men have, however, thought differently, and have exerted their energies to make a success of it. I find that eleven out of the twenty-six past presidents of the American Dental Association are now officers and members in this section, and there are thirty-six or more active members of the section and council who are now active members of good standing in the American Dental Association. We owe something to these men, and should pay deference to their wishes. I believe that a meeting of the Association this year would be detrimental, and I shall vote to postpone it one year, so that the members will not feel that there is a conflict of duty about attending either the one or the other. I know there are several propositions to change the time and place of meeting, but after carefully considering the matter, I believe that we shall not have a full or profitable meeting this year, wherever we may meet.

The Southern Dental Association cannot well meet with the American Dental Association, as it has already fixed upon its time and place, and they have

shaped matters so that they may go directly from this meeting to the Congress. This would prevent their meeting with us at Asheville. If we should hold the meeting, and there should be a poor representation from the South, it would be charged that southern men were unwilling to meet with their northern brethren. If, however, the meeting be held at Asheville in 1888, there will, in my opinion, be one of the best and largest gatherings of dentists which America has ever seen.

G. W. McElhaney.

Columbus, Ga., April 12, 1887.

MASSACHUSETTS DENTAL LAW.

The following bill has been passed by the Legislature of the State of Massachusetts, and received the sanction of the Governor April 1st. Since the approval of the bill the Governor has appointed the following as members of the Board of Registration :

For three years,	L. D. Shepard, D. M. D.,	Boston.
" two "	J. S. Hurlburt, D. D. S.,	Springfield.
" " "	E. V. McLeod, D. D. S.,	New Bedford.
" one year	G. E. Mitchell,	Haverhill.
" " "	J. T. Dowsley,	Boston.

An Act to Establish a Board of Registration in Dentistry.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows :

Section 1. The Governor of the Commonwealth, with the advice and consent of the council, shall appoint, after the passage of this act, five skilled dentists of good repute, residing and doing business within the Commonwealth, who shall constitute a Board of Registration in dentistry; but no person shall be eligible to serve on said board, unless he or she shall have been regularly graduated from some reputable medical or dental college duly authorized to grant degrees in dentistry, or shall have been engaged in the practice of dentistry for a period of not less than ten years previous to his appointment : *provided, however*, that no person shall be eligible to serve on said board who is in any way pecuniarily connected with any dental college or dental department of any college or university. The term for which the members of said board shall hold their office shall be three years, except that two of the members of the board, first to be appointed under this act, shall hold their office for the term of one year, two for the term of two years and one for the term of three years respectively, and until their successors shall be duly appointed and qualified. In case of a vacancy occurring in said board such vacancy shall be filled by the Governor in conformity with this section. Any member of said board may be removed from office for cause, by the Governor, with the advice and consent of the council.

Sec. 2. Said board shall choose one of its members president, and one secretary thereof, and it shall meet at least twice in each year. Four of said board shall constitute a quorum, and the proceedings thereof shall, at all reasonable times, be open to public inspection.

Sec. 3. Within six months from the time this act takes effect, it shall be the duty of every person who is at that time engaged in the practice of dentistry in this State, to cause his or her name, residence and place of business to be registered with said board, who shall keep a book for that purpose. The statements of every such person shall be verified under oath before a notary public or justice of the peace in such manner as may be prescribed by the board. Every person engaged in the practice of dentistry within this Commonwealth at the time of the passage of this act, and who shall so register with said board as a practitioner of dentistry, shall receive a certificate to that effect, and may continue to practice without incurring any of the liabilities or penalties provided in this act.

Sec. 4. All persons not provided for in section three may appear before said board at any of its regular meetings and be examined, either orally or by written examination at the option of the several applicants, with reference to their knowledge and skill in dentistry and dental surgery; and if the examination of any such person or persons shall prove satisfactory to said board, the board shall issue to such persons as it finds to possess the requisite qualifications, a certificate to that effect, in accordance with the provisions of this act. All certificates issued by said board shall be signed by its officers; and such certificates shall be *prima facie* evidence of the right of the holder to practice dentistry in Massachusetts.

Sec. 5. Any person who shall violate any of the provisions of this act shall be deemed guilty of a misdemeanor, and, upon conviction, may be fined not less than fifty nor more than one hundred dollars, or confined three months in the county jail, for each and every offence.

Sec. 6. The said board shall charge each person receiving a certificate the sum of fifty cents, and each person appearing before them for examination for a certificate of qualification a fee of ten dollars, which fee shall in no case be returned. Any person failing to pass a satisfactory examination shall be entitled to be re-examined at any future meeting of the board, free of charge, but no applicant shall be examined oftener than twice in one year. Said board shall make an annual report of its proceedings to the Governor, by the thirty-first day of December in each year. All fees received by the board under this act shall be paid by the secretary of the board into the treasury of the Commonwealth once in each month.

Sec. 7. The compensation, and all necessary expenses of the board, shall be paid from the treasury of the Commonwealth. The compensation of the board shall be five dollars each for every day actually spent in the discharge of their duties, and three cents per mile each way for necessary traveling expenses in attending the meetings of the board, but in no case shall any more be paid than was actually expended. Such compensation and expenses shall be approved by the board and sent to the auditor of the Commonwealth, who shall certify to the Governor and council the amounts due as in case of all other bills and accounts approved by him under the provisions of law: *provided*, that the amount so paid shall not exceed the amount received by the treasurer and receiver-general of the Commonwealth from the board in fees as herein specified, and so

much of said receipts as may be necessary is hereby appropriated for the compensation and expenses as aforesaid.

SEC. 8. Any person who shall falsely claim or pretend to have or hold a certificate of license, granted by any board organized under, and pursuant to, the provisions of this act, or who shall falsely, and with intent to deceive the public, claim or pretend to be a graduate from any incorporated dental college, or who shall practice dentistry without obtaining a certificate as provided in this act, shall be deemed guilty of a misdemeanor, and shall be liable to the same penalty as provided in section six.

SEC. 9. Nothing in this act shall apply to any practicing physician who is a graduate from the medical department of any incorporated college.

SEC. 10. This act shall take effect upon its passage.

COMPLIMENTARY DINNER.

A dinner commemorative of the fiftieth year of dental practice of Dr. John B. Rich, of New York, was given at Mazetti's on the evening of February 26th, twenty-five dentists being present.

Dr. Rich was the first speaker, and recited his dental experience of half a century, calling attention to the fact that he was the connecting link between the past and present of dentistry in this country. He was personally acquainted with Dr. Greenwood, the first American dentist, and was present when the first dental college, and the first dental society, and the first dental journal were conceived, and in this connection related the following interesting fact: When Dr. C. A. Harris came to New York from Baltimore to endeavor to induce some medical college to open a dental department, having already failed in the South, he received no encouragement here. At one of the meetings, Dr. Solyman Brown suggested: "Why not establish an independent dental college?" Dr. Eleazar Parmly answered, "Yes; why not?" and Jehial Parmly, in his gruff and emphatic manner, added, "Certainly; why not?" Dr. Rich further stated that at a subsequent meeting Dr. Solyman Brown said: "And now let us have an independent dental journal!" and the journal and society immediately followed. Thus was born the first society, the first college and the first journal, and these marked the beginning and commenced the history of modern dentistry.

Drs. Dwinelle, Kingsley, Northrop, Jarvie and Perry were called upon, and each congratulated the venerable guest of the evening upon reaching this unusual anniversary, and upon the wonderful professional changes which he had been permitted to see, and to which he had contributed in so great a degree. Later in the evening some of the younger members of the profession were called upon, and Drs. Rhein, J. G. Palmer and Parmly Brown were not lacking in expressions of congratulation and good wishes.

It was a memorable occasion. Good cheer held smiling sway, and wine and wit sparkled spontaneously. With nothing to mar the harmony of the occasion, the guests at a late hour separated, wishing the venerable doctor many more annual anniversaries of his entrance upon dentistry. E. P. B.

DENTAL SOCIETY OF THE STATE OF NEW YORK.

The nineteenth annual meeting will be held in the Common Council Chamber, Albany, Wednesday and Thursday, May 11 and 12, 1887.

The Society will be called to order at 10 A. M., Wednesday. Members, or others, who desire to present papers, the titles of which do not appear in the programme, should so inform the Chairman of the Business Committee, before the meeting. Persons intending to compete for the "Whitney Memorial Prize" must have their essays with the Chairman of the Committee on Prize Essays, Dr. M. D. Jewell, Richfield Springs, at least ten days before the meeting The envelope containing the essay should be marked "For the WHITNEY MEMORIAL PRIZE." The name of the writer may accompany the essay, *but in another and sealed envelope.* Conditions—The essay shall be worthy and the prize available.

The Secretaries of the several District Societies are requested to forward their reports to the Secretary of the State Society immediately. It is desired that the reports be made as complete as possible. For models, see transactions for '86. Persons who wish to exhibit appliances, materials, etc., should correspond with Dr. C. E Baxter, Albany.

The Board of Censors will meet at the Delevan House, Tuesday morning, May 10th, at 10 o'clock, for the examination of candidates for the degree of "Master of Dental Surgery" (M. D. S.). No examination will be held during the meeting of the Society. Information as to the requirements of the Board may be had by addressing the Secretary, Dr. Frank French, Rochester.

EIGHTH DISTRICT DENTAL SOCIETY.

The nineteenth annual meeting of the above society was held in Buffalo, April 19th and 20th. The sessions were more than usually interesting, and profitable papers were read by Drs F. W. Low, "The Dividing Line"; H. A. Birdsall, "Dentistry versus Medicine"; W. C. Hayes, "Neuralgia"; W. A. Barrows, "Restoring Discolored Teeth"; M. H. Dailey, "Failures"; B. Rathbun, "Soft Gold in Filling Teeth." Some of them were of more than usual ability and interest.

Drs. C. J. Ellis, of Buffalo, and M. H. Lennox, now of Minneapolis, were expelled for unprofessional conduct.

Dr. C. C. Carroll, of Meadville, Penn., gave a clinic in the use of Aluminum as a base for artificial teeth, which attracted much attention and elicited favorable comment.

The officers elected to serve for the ensuing year are as follows:

President—J. Granger, Mayville.
Vice-President—F. E. Howard, Buffalo.
Recording Secretary—S. A. Freeman, Buffalo.
Corresponding Secretary—B. Rathbun, Dunkirk.
Treasurer—C. W. Stainton, Buffalo.
Librarian—M. B. Straight, Buffalo.
Censor—L. W. Bristol, Lockport.
Delegates to the State Society—M. H. Dailey, G. B. Scott and J. Granger.

ILLINOIS STATE DENTAL SOCIETY.

The Executive Committee of the Illinois State Dental Society announces the following list of reports and essays for the next annual meeting, which will be held at Jacksonville, the second Tuesday in May:

1.—Report of the Committee on Dental Science and Literature: Dr. C. R. E. Koch, of Chicago (Chairman); Dr. M. L. Hanaford, of Rockford; Dr. Louis Ottofy, of Chicago.

2.—Report of the Committee on Dental Art and Inventions: Dr. J. A. Swasey, of Chicago (Chairman); Dr. W. T. Magill, of Rock Island; Dr. J. Frank Marriner, of Ottawa.

3.—Essay—Dr. Norman J. Roberts, of Waukegan—"Regulating Appliances."

4.—Essay—Dr. Homer Judd, of Alton—"Retention of Pulpless Teeth in the Jaws."

5.—Essay—Dr. A. W. Harlan, of Chicago—"Practical Therapeutics, with Notes on the Application of Special Drugs."

6.—Essay—Dr. L. C. Ingersoll, of Keokuk, Iowa—"Medicinal Stimulants."

7.—Essay—Dr. Truman W. Brophy, of Chicago—"Diagnosis of Oral Tumors."

8.—Essay—Dr. W. N. Morrison, of St. Louis, Mo.—"Operative Dentistry as applied to Deciduous Teeth."

9.—Essay—Dr. L. L. Davis, of Chicago—"The Microscope and its Uses in Progressive Dentistry."

The culture of micro-organisms will be continued by Drs. Black and Moody, and an essay is expected from one of them, embracing the result of their investigations.

The clinics, under the supervision of Dr. C. F. Mattison, are expected to be unusually interesting.

In order that the report of the Committee on Mechanical Art and Inventions may be a valuable feature to our meeting, all of the members who have anything new, coming under that head, are urged to send or report it to the committee.

E. J. Greene,
W. H. Taggart,
P. J. Kester,
Executive Committee.

KENTUCKY STATE DENTAL ASSOCIATION.

The seventeenth annual meeting will be held at Louisville, Ky., beginning Tuesday, June 7th, and continuing three days.

Members of the dental profession at large are cordially invited to attend, and unite with us in making the meeting one of great profit.

Reduced rates have been arranged for at the following hotels: Louisville Hotel, $2.50 per day; Fifth Avenue, $1.50 for two in a room, or $1.75 for one in a room, per day; St. Cloud Hotel, $1.50 per day; Alexander, $2.00 per day.

For further information address the Secretary,

Chas. E. Dunn, D. D. S.,
No. 529 Second Street, Louisville, Ky.

CHICAGO COLLEGE OF DENTAL SURGERY.

Fifth annual commencement at the Grand Opera House, Monday, March 28, 1887, at 2.30 P. M.

GRADUATES.

Bacon, Dewitt Clinton.....Illinois.
Bentley, Charles Edwin...Wisconsin.
Calkins, Charles D., M. D....Illinois.
Conn, Walter Scott.....Illinois.
Davis, Ernest Edward.....Michigan.
Dodge, Frank Armstrong.New York.
Hart, Edmund Jerome....Wisconsin.
Henderson, Luther David..Wisconsin.
Liggett, John..... ..Illinois.
Morris, William Evans.....Illinois.
Norton, M. Eugene.....Illinois.
Pagin, James Richard.....Indiana.
Reed, John Henry.....Wisconsin.
Seeglitz, Otto Eberhardt.....Illinois.
Underwood, Chester James...Illinois.
Wadsworth, Henry Palmer...Illinois.
Wermuth, Frank Charles..Wisconsin.
Wilson, Harry H.....Illinois.
Zinn, Frank H..... Wisconsin.
Ballard, Henry Cliff.....Minnesota.
Broadbent, Thomas A., B. S..Illinois.
Coltrin, Charles Wilkins.....Illinois.
Damon, William Henry.....Illinois.
Deming, Charles Perry ...Wisconsin.
Goodearle, Joseph Henry..Wisconsin.
Haskins, George William.....Illinois.
Keefe, James Eucherius.....Illinois.
Mawhinney, Elgion.....Dakota Ter.
Nelson, Arthur.....Missouri.
O'Brien, Henry .....Illinois.
Pitt, Harry Norris.....Illinois.
Rosenkranz, Charles C.....Illinois.
Stover, Frank Garner.....Illinois.
Wade, Harry Elmer.....Illinois.
Waschkuhn, Julius Albert... Illinois.
West, George Nelson.....Illinois.
Witt, William..... ....Illinois.

CHICAGO DENTAL COLLEGE.

The fourth annual meeting and banquet of the Alumni Association of the Chicago College of Dental Surgery was held at the Leland Hotel, Saturday, March 26, '87, about sixty-five members being present.

The officers elected for the ensuing year were as follows:

President—Dr. E. E. Cady.
First Vice-President—Dr. J. A. Dunn.
Second Vice-President—Dr. J. G. Emery.
Secretary—Dr. James Stewart.
Treasurer—Dr. Edmund Noyes.

FIRST DISTRICT SOCIETY OF NEW YORK.

The annual election of this society was held on Tuesday evening, April 5th, and the following officers chosen:

President—Dr. W. W. Walker.
Vice-President—Dr. J. F. P. Hodson.
Secretary—Dr. B. C. Nash.
Treasurer—Dr. C. W. Miller.
Executive Committee—Drs. A. L. Northrop, C. E. Francis and W. Carr.
Censors—Drs. E. A. Bogue, W. A. Bronson, C. A. Woodward, Frank Abbott and A. L. Northrop.

CHICAGO DENTAL SOCIETY.

At the annual meeting of the Chicago Dental Society, held Tuesday evening, April 5th, the following officers were elected for the ensuing year:

President—Dr. J. G. Reid.
First Vice-President—Dr. J. A. Swasey.
Second Vice-President—Dr. G. H. Bentley.
Recording Secretary—Dr. C. N. Johnson.
Corresponding Secretary—Dr. W. B. Ames.
Treasurer—Dr. E. D. Swain.
Librarian—Dr. A. W. Harlan.
Board of Directors—Drs. G. H. Cushing, E. Noyes and J. A. Swasey.
Board of Censors—Drs. B. L. Rhein, J. W. Wassall and L. L. Davis.

W. B. Ames, Cor. Sec'y.

THE AMERICAN ACADEMY OF DENTAL SURGERY OF NEW JERSEY.

The following is the list of officers elected at the annual meeting for the current year:

President—W. W. Walker, New York.
Vice-President—Fred. A. Levy, Orange.
Secretary—Chas. A. Meeker, Newark.
Treasurer—A R. Eaton, Elizabeth.
Curator—James G. Palmer, New Brunswick.
Board of Examiners—Fred. C. Barlow, Jersey City; Worthington Pinney, Newark; C. A. Timme, Hoboken; William P. Richards, Orange; G. Carleton Brown, Elizabeth.
Counsel—Herbert Boggs, 800 Broad Street, Newark, N. J.

NEW YORK ODONTOLOGICAL SOCIETY.

The annual dinner of this excellent and well known society was held on Tuesday afternoon, April 12th, at Hotel Brunswick, on Fifth Avenue. It was a very pleasant gathering, and a number of distinguished guests from other States were present.

The dinner over, and after many friendly greetings, the party started for the Academy of Medicine, where a feast of another character was partaken and apparently enjoyed by those who had the good fortune to listen to the reading of Dr. Davenport's excellent paper, and the discussions that followed.

MASSACHUSETTS DENTAL SOCIETY.

The semi-annual meeting will be held at the Hawthorne Rooms, No. 2 Park Street, Boston, Thursday and Friday, June 9 and 10, 1887.

The committee expect this to be one of the most valuable and instructive meetings ever held.

Papers and clinics of particular interest are already assured.

Per Order Ex. Com.,
Geo. F. Eames, Sec'y.

HYDRONAPHTHOL.

This, the latest antiseptic and disinfectant obtained from the phenol series of coal tar products, is rapidly forging its way to the front in popular estimation. Surgeons and gynæcologists everywhere, both in hospital and private practice, accord it the highest praise for all purposes of an antiseptic and disinfectant. Its freedom from odor, poisonous properties or corrosiveness, gives it preference over carbolic acid and all antiseptics heretofore employed. A book containing full description of Hydronaphthol will be mailed free to physicians applying by postal to Seabury & Johnson, Manufacturing Chemists, 21 Platt St , New York.

KANSAS STATE DENTAL ASSOCIATION.

The sixteenth annual meeting will be held at Topeka, Kansas, commencing Tuesday, April 26, 1887, and will continue three days. It is expected that this will be one of the best meetings of the society ever held, and a cordial invitation is extended to all to be present and assist in making it such.

C. B. Gunn, Secretary.

MISSOURI STATE DENTAL ASSOCIATION.

The twenty-third annual meeting of the Missouri State Dental Association will be held at Kansas City, Mo., the last Tuesday in June, continuing four days, June 21st and 24th inclusive. John G. Harper, D. D. S , Rec. Sec'y.

William Conrad, D. D. S., President

When Dr. McKellops does anything, it is apt to be well done. His latest evolution is a "Dental Blotter" that is marvelously convenient. In the first place, on each leaf is a diagram of all the permanent teeth, and the first of its kind, so far as our knowledge extends, which clearly exhibits every surface of every tooth, with all the roots in perfect contour, so that an operation may be distinctly marked in its exact location. On the same leaf is a proper form for recording the name, residence, etc., of the patient, and below this a blank ruled for accounts. Then the whole is perforated, so that it may easily be torn out and sent as a bill, the patient thus having a perfect record of the case. It is thus a bill-book, a dental record and blotter, all in one.

During a recent visit to the editor, Dr. McKellops explained the method of using it, and it would really seem to be almost indispensable to a systematic method of keeping accounts. He purposes, as soon as leisure can be found, to prepare a "Dental Register" upon the same general principle.

The Dentists of Buffalo met at the office of Dr. Southwick, on the evening of April 12th, to take into consideration the propriety of establishing a dental college in Buffalo. After a full and free interchange of opinion a ballot was taken, which resulted in but one vote in favor of establishing a college. So it may be understood that the disinterested dentists of Buffalo do not believe that a college is indispensable, either for their prosperity or happiness, or for the good of dentistry.

The Seventh District Dental Society held its annual meeting in Rochester, on Tuesday and Wednesday, April 26th and 27th. The following were elected officers for the ensuing year:

President—F. A. Greene, Geneva.

Vice-President—F. D. Browne, Mt. Morris.

Recording Secretary—C. T. Howard, Rochester.

Corresponding Secretary—W. A. White, Phelps.

Treasurer—J. Requa, Rochester.

The meeting was well attended, and the papers and discussions were more than usually profitable.

Scribner's Magazine! The words have a refreshing sound. Many thousands of the readers of the old *Scribner's*, as edited by Dr. Holland, were disappointed when that journal was changed to *The Century*, and have never ceased to regret their old favorite. To such, the knowledge that *Scribner's* has been revived, will come with welcome sound. The new series bears many of the features which made the old *Scribner's* such a favorite. We miss the genial spirit and graceful pen of the author of "Bitter Sweet," but his place is well filled by others. Welcome! thrice welcome! then, to the new *Scribner's!*

Dr. J. Austin Dunn, of Chicago, has devised the very best of the many medicinal syringes which have been presented to dentists. It is so simple and yet so effectual that the only wonder is that it was not sooner conceived. The long, delicate, yet strong and flexible point may be thrust up nerve canals, or be inserted deeply into an alveolar abscess, and the force with which remedies may be thrown is quite surprising. It is essential to a perfect practice. It will be found illustrated in the advertising pages.

The Open Court is the name of a fortnightly paper published in Chicago, which is the index of free thought in religious and scientific matters. It is not the organ of freethinkers in the sense of free license to revile everything good, but of advanced and rational religious thought, in contradistinction to religious bigotry, intolerance and pharisaism—of a religion that is not in direct conflict with the truths of science. It is an excellent journal for a thinking man.

Dr. E. Parmly Brown is a very ingenious man, and has invented many appliances which are essential to many dentists. It would be a difficult matter to enumerate them all, but if the reader will turn to the advertising pages of this number, he will find the claims of some of the more important ones set forth. The editor of this journal has personally tested the most of them, and can vouch for their practicability and usefulness.

Among the successful works of fiction of the present season are Dr. S. Weir Mitchell's "Roland Blake" and Dr. William A. Hammond's "Tales of Eccentric Life."

Dr. Wilhelm Herbst, of Germany, has been honored with the diploma of the Cincinnati Dental College.

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And have in stock a full assortment of

FLAT TEETH for Metal Plate, and Crown and Bridge Work.
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Our MINERAL TEETH

Possess the following desirable qualities.

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   In great variety and of various sizes and lengths.

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   Ranging from very light to very dark shades, and closely resembling the various colours of the human teeth.

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   Non-porous, so that they can be *ground* and *polished* to suit particular cases, therefore being well adapted for Bridge work.

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   Possessing unusual strength on account of their fine and close texture.

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Some unprincipled dealers in the United States are selling imitations of our pinless teeth as our make. Dentists can easily detect the imitation, from the very rough finish and inferior coloring of these teeth.

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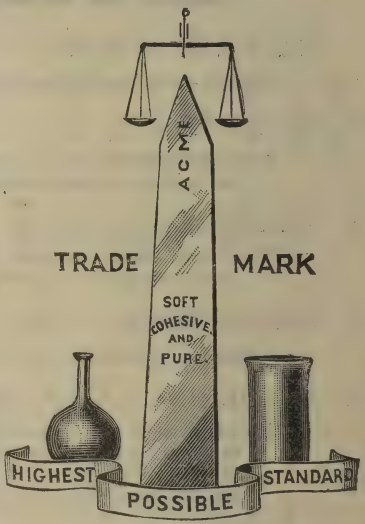
ABSOLUTELY PURE GOLD.

After twenty years as a practical Gold Beater and Refiner of Gold and Silver, and manufacturer of Gold Leaf in various shades and qualities, I am in position to state that there is no purer quality of Gold Foil manufactured, no matter how great the reputation of others, whether domestic or foreign.



Cylinders $30.00 per oz.; ⅛ oz. $3.75. Acme Cylinders are made from our Acme Soft Foil, which is absolutely pure. The name Acme is given to this Gold for the reason that it is as pure as it is possible for chemical agencies or human hands to produce.

Acme Soft Foil, $28.00 per oz.; $3.50 per book of ⅛ oz.

Crystal Surface, or Corrugated Foil, softest working Foil known, $28.00 per oz.; $3.50 per book of ⅛ oz.

Acme Folded Foil, a convenient substitute for Cohesive Foil, easy to handle and anneal $28.00 per oz.; $3.50 per ⅛ oz.

Appended a few of numerous Testimonials:

BROOKLYN, N. Y., Nov. 21, 1885.

I think Henry's Gold the finest, *without any exception*, I ever used.

FRANK P. ABBOTT.

ATHENÆUM, BROOKLYN, N. Y., Sept. 10, 1875.

MR. HENRY,

Will you have your agent call on me I had a book (⅛ oz.) of your gold a long time since, and when the agent last called I told him I didn't know whether I liked it or not. Since then I found a package unopened, have used it and like it much.

Truly, A. N. CHAPMAN.

NEW YORK, Aug. 22, 1885.

MR. T. J. HENRY,

Dear Sir,—Your agent left one book of your Corrugated Gold Foil for trial, and I would not be doing you justice without saying that it works equal to any Gold I have ever used. Please send agent with a further supply and oblige,

Yours, respectfully,

V. VAN VLECK, M. D.
284 6th Ave.

One of the many testimonials we receive almost every hour in the day:

NEW YORK, Sat., Nov 14, 1885.

Dear Sir,—Please send your man with Foil.

Yours truly, N. M. BECKWITH,
21 West 37th St.

Gold will be sent free of cost to any part of the United States or Canada. Remittances must accompany all orders.

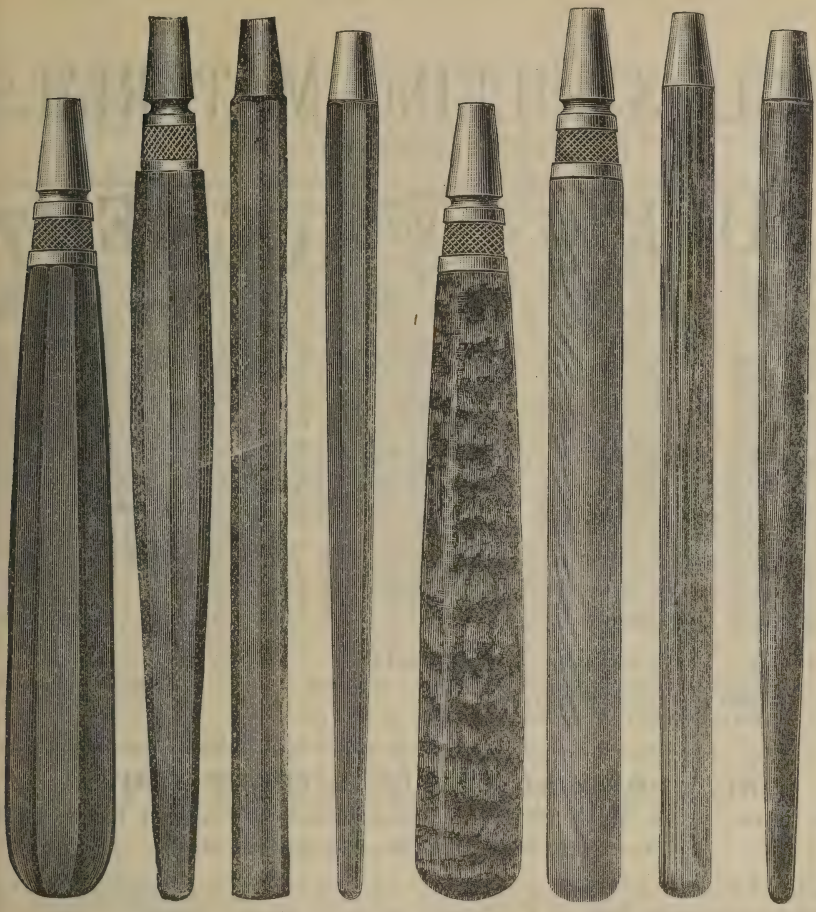
ADDRESS,

T. J. HENRY, GOLD LEAF FACTORY,
No. 16 Centre St., N. Y.

ESTABLISHED 1875.

P. S.—Dental Depots supplied at a liberal discount. Special Brands of Gold manufactured according to orders.

NEW LINE HARD WOOD HANDLES.



8	9	10	11	12	13	14	15
Per doz. $5.00.		Per doz. $3.00.		Per doz. $5.00.		Per doz. $3.00	

☞CUTS EXACT SIZE OF HANDLES.☜

We desire to call your attention to the beautiful line of HARD WOOD HANDLES.

SNAKE WOOD, OLIVE, TULIP, COCABOLA, EBONY, ROSEWOOD.

After repeated demands for such Handles as here illustrated and described, and being so thoroughly satisfied of the numerous advantages as named to us, we have taken advantage of our first opportunity to produce them, and are now prepared to supply the full line.

After consulting many of the dentists as to the best sizes and shapes, we are now satisfied that the Handles as illustrated will meet every demand. We have selected distinctive colors of the fine grain and beautiful woods, and with the (6) different shades or colors of woods and the (8) sizes and styles of Handles, enables one to make up a combination of 4 doz. Handles (no two alike), thus the instrument desired when operating can readily be selected.

☞We will keep in stock all the above Handles to take the regular Cone Socket Points. In addition to this we will keep in stock, Handles Nos. 8, 9, 12, 13 to take the Snow & Lewis Plugger Points.

When ordering please state whether you desire them for Cone Socket or Snow & Lewis' Points. Also when ordering wood Handles, state numbers of Handles and kind of wood desired. Soliciting your orders for the above, either through your dealer, or direct, we are,

Yours respectfully,

AMERICAN DENTAL MANUFACTURING CO.,

Broadway, cor. 37th Street,

WRITE FOR CATALOGUE. NEW YORK.

CAULK'S FILLING MATERIALS.

ESTABLISHED 1877.

FOUR COLORS and LIQUID.—Gray, Yellow, Medium and Light, - - $2.00 per Package.
TWO COLORS and LIQUID.—Gray and Yellow, - - - 1.50 " "
ONE COLOR and LIQUID.—Gray, Yellow, Medium, Light or Gum, - - 1.00 " "

THIS COMPOUND STANDS WITHOUT A RIVAL.

From Seven to Ten Years' Test by Leading Dentists Throughout the World has Proved it to be All That Has Been Claimed for it.

Diamond Cement should not be classed with the so-called oxy-phosphates, as is often the case—the materials of which it is composed and its process of manufacture being entirely different—hence its SUPERIORITY.

It will Harden in Water or Saliva. The liquid does not crystallize.

Two or more colors blended together (in mixing) will produce any shade desired. All bottles are lettered "*Caulk's Diamond Cement.*"

As Now Made, is Slower in Setting, giving ample time for the slowest operator to manipulate it properly.

Gum Color Cement for making tight joints in vulcanite work. Diamond Cement has been used for this purpose for many years, and in order to supply the recent demand we are making a *better color*, and an article more suitable for this purpose than can generally be found in the market. Mix thin, drop into the joints, and pack at once.

The use of cements is not sufficiently inculcated. We use it as a rule when patients are not able to pay for large gold fillings, as a matter of economy, but the fact is it saves teeth that gold would not save. I have a case in mind. Teeth which were decaying rapidly *FIVE YEARS AGO*, I filled with Caulk's Diamond Cement, and they are now in good condition.—Dr. E. S. Chisholm, in *Transactions* of the *Alabama Dental Association for* 1886.

THE UNIVERSAL VERDICT IS THAT CAULK'S DIAMOND CEMENT IS THE BEST.
A FAIR TRIAL WILL CONVINCE YOU.

CAULK'S PAR-EXCELLENCE ALLOY

This GOLD AND PLATINA ALLOY is manufactured on a NEW PRINCIPLE.
None better made. Saves Teeth where others fail.

With one exception, we were the first to manufacture Amalgam containing Gold and Platinum, although we did not call it such, simply our trade name, Par-Excellence Alloy, which fully expresses the superiority of this combination of metals over others. It is the result of a long series of experiments, and has been in constant use for nearly ten years. By our new method of manufacture there is no **guess work,** the molecular change is controlled, making each and every ingot always and absolutely alike in its properties.

Price in ⅓, ½ and I ounce packages, per ounce, $3.00; 2 ounces, $5.00.

CAULK'S WHITE ALLOY

Has been greatly improved. Costing more to produce it.
There is NOTHING EQUAL or Superior to it.

Is of a peculiar grayish-white color. When amalgamated in the hand it works with a soft and velvety feeling. It is very DENSE, and so malleable that it can be malleted with the greatest ease. Has been highly recommended in Combination Fillings of Gold and Amalgam. When properly manipulated with our PURIFIED MERCURY it will retain its color under all circumstances.

Price, ¼, ½, and I ounce Packages, per ounce, $4.00; 2 ounces, $7.00.

CAULK'S DIAMOND POINT STOPPING

AND GUTTA-PERCHA POINTS FOR FILLING ROOTS.

This form of gutta-percha, having been in the market for TEN years, has stood the greatest test of all—that of time. It is regarded as the best preparation of its kind for filling teeth in the world.

The Stopping is put up in SEALED ENVELOPES, and the Pellets, Cylinders and Points in SEALED BOXES, each bearing a *fac-simile* of our signature.

Price, in ⅛, ¼, ½ and I ounce packages, per ounce, (reduced to) $2.00.

We make a specialty of manufacturing these materials for filling teeth.

Over Fifteen Thousand (15,000) Dentists are using these Materials throughout the civilized World. What better evidence do you wish of their Superiority and Excellence?

Publisher Caulk's Dental Annual for 1886-'87, No. V. Price, 50 Cents.

L. D. CAULK, Manufacturer and Proprietor, CAMDEN, DEL.

SOLD AT ALL DENTAL DEPOTS.

COGSWELL'S
Disk Carrier and Guard

MADE BY

CODMAN & SHURTLEFF,

167 Tremont Street, BOSTON, MASS.

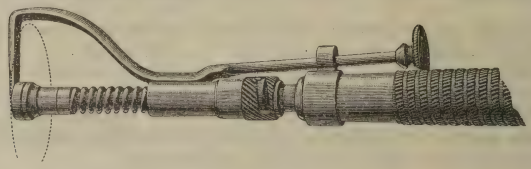


Fig. 214.

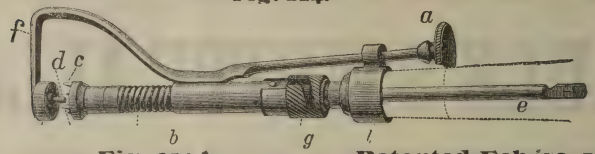


Fig. 214 A. **Patented Feb. 10, 1885.**

This invention will be found indispensable by every dentist who values time, as it will enable him to attach the much used Disk to the Engine Mandrel in a small fraction of the time required by other methods.

It is represented in the figures as connected to the Hand-piece. In Figure 214 the holding device is represented as closed, the outline of Disk being indicated by circle of broken lines. In Figure 214 A, it is shown as opened by slight pressure of the thumb or finger against the knob *a*, ready to receive the disk. Upon relaxing this pressure the spring *b* closes upon the disk, which is centered upon *d*, perforated by four hardened steel points, *cc*, and thus securely held ready for rotation. The carrier is attached to the Hand-piece by insertion of the Mandrel *e*. A friction ferule *l* overcomes slight tendency of bracket *f* to rotate, and enables the operator to retain the guard opposite that portion of the disk where it will most effectually guard cheek, tongue, or other part from injury, or, prevent interference with rubber dam. At *g* is a locking sleeve, employed only when in the use of stiff disks there is a tendency to overcome pressure of spring *b*, and permit loosening of disk.

The Carrier will receive disks of ⅞ inch diameter down to ⅜ or even smaller. It may be rotated in either direction without loosening the disk, as occurs with the ordinary screw-held disk.

PRICE, $2.50.

We are prepared to supply the Disk Carrier and Guard to fit the S. S. W. Hand-pieces, Nos. 5 and 6, Hodge's and Bonwill's Improved, at this price. Other Hand-pieces, if sent us, will be fitted to order at the same price, or at a moderate additional charge. ***In ordering, state what Hand-piece is used.***

MESSRS. CODMAN & SHURTLEFF : BOSTON.

Gentlemen,—The new Disk Carrier, with guard, which I have fully tested, is very satisfactory in all respects. I prefer it to any other pattern now in the market.

ISAAC J. WETHERBEE, D. D. S., *Pres. B. D. C.*

From J. B. Coolidge, M.D., D.D.S., Professor of Clinical Dentistry, in Boston Dental College.

MESSRS. CODMAN & SHURTLEFF:—

The new Disk Carrier which you sent me is the best. It will very soon save its cost in the time required for changing the disk. The guard will be found of great use in protecting the cheek, tongue, and rubber dam from the action of the disk. I would recommend it to every Dentist. J. B. COOLIDGE.

From J. A. Watling, D.D.S., Professor of Operative Dentistry, Michigan University.

MESSRS. CODMAN & SHURTLEFF,
167 Tremont Street, Boston, Mass.:

Dear Sirs,—Your Disk Carrier received. After several careful trials, I feel justified in recommending it to the profession as a very useful and valuable addition to a dentist's outfit.

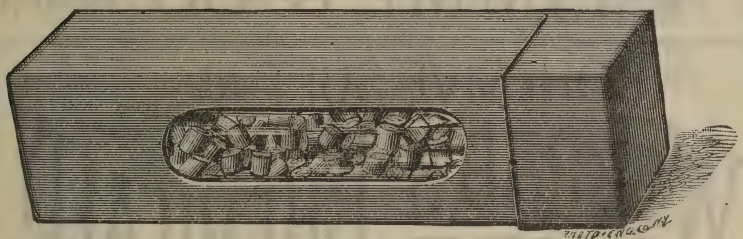
It is one of the best that I ever used. Is readily applied to the engine, and to replace the old disk with a new one requires but a few seconds.

The protector, while holding the disk firmly in place and being all that is necessary for the prevention of injury to the mouth, does not shut off the view of the filling to be finished.

It is indeed an instrument to be desired by all careful practitioners.

1-6-an-1 Respectfully, J. A. WATLING, D. D. S.

EXTRA PLIABLE DECIMAL GOLD ROLLS.



(This Engraving represents a Phial of size 1 of the above designated Gold, inclosed in a Box.)

Gold Foil and Gold Rolls, per 1-10 ounce,	$3.00.	Per ounce, $28.00
Extra Pliable Decimal Gold Rolls, per 1-10 ounce,	3.50.	Per ½ ounce, 17.00
Untrimmed Foil, per 1-5 ounce book,		5.50
Ideal Cement, per package, with Pigments,		1.00
Rowan's Ideal Alloy, No. 1, per 1 oz. $5.00, 2 ozs. $9.00, 4 ozs.		16.00
Rowan's Ideal Alloy, No. 2, per 1 oz. $3.00, 2 ozs. $5.50, 4 ozs.,		10.00
Tin Foil (our make), very tough, per book,		.50

Try some of our "Ideal" Cement Filling and "Ideal" Alloy.

Appended are testimonials for our preparations of Gold from well-known gentlemen:

I have used the Rolled Gold of Edward Rowan & Co., and like it very much. I prefer high numbers—30, 60 and 120—for facility of adaptation to walls of cavities, capacity to bear high annealing and making solid work, I know no superior make.

W. H. ATKINSON,
41 E. 9th Street, N. Y.

October 23, 1882.

271 N. Eutaw Street. BALTIMORE, Md., June 5th, 1883.

GENTLEMEN—I have used nearly all of the last ounce of your "Extra Cohesive" Decimal Gold Foil No. 4, and it affords me pleasure to inform you that it has *proved* to be a *first-class article* in every respect. It is *cohesive* and *tough* in the *highest degree*, yet possessing *less harshness* than is usually found in cohesive foils. I cheerfully thus refer to it, and so long as you continue to make such foil, I want nothing better. Very respectfully,

JAS. H. HARRIS, M. D., D. D. S.

No. 100 Boylston Street. BOSTON, MASS., June 30, 1883.

Sirs—I have used your Rolled Gold for several years. When I wish to use *cohesive* gold, I prefer your No. 30 Rolled to any gold with which I am familiar. It is very tough, soft and cohesive. In short, pleasant and easy to work, and makes a compact, even and finished filling. Yours truly,

L. D. SHEPARD,
Late Professor of Operative Dentistry, Harvard University.

S. H. GUILFORD, A.M., D.D.S., (*Professor of Operative and Prosthetic Dentistry, Phila. Dental College,*) has permitted us to state that he uses and recommends our "Gold Rolls."

DR. H. J. MCKELLOPS, of St. Louis, writes us, under date September 16, 1884, "You may use my name in connection with your Gold with pleasure."

H. C. REGISTER, M. D., D. D. S., of Philadelphia, writes us, "You are permitted to use my name in recommending your Gold, as second to none in the world!"

CHAS. L. STEEL, M. D., D. D. S., of Richmond, Va. (*Demonstrator Operative Dentistry, University of Maryland*). DEAR SIRS—Your last ounce of Gold duly received, and, as usual, works superbly. I have used many makes of Cohesive Foil, but for some time past have confined myself to yours exclusively, as I find none other so near perfection.

A. H. FULLER, M. D., D. D. S. (*Professor of Operative Dentistry, Missouri Dental College*). Should you so desire you may state that I have been using your Gold for the past year or more, and find it first-class in every respect. Shall send you an order in a few days for more.

WM. CARR, M. D., 35 West 46th Street, New York, permits us to state that he endorses our Golds. He uses Nos. 3 and 4 soft; No. 60 Rolled; and Gold Rolls.

EDWARD ROWAN & CO.

No. 1048 Third Avenue, S. W. Corner 62d Street, New York.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

REFERENCES FURNISHED ON REQUEST.

C. A. TIMME & CO. Importers of

CASH MUST ACCOMPANY THE ORDER.

COHESIVE, SOFT No

WOLRAB'S PURE CHEMICALLY

GOLD FOIL

C. A. TIMME & CO.

IMPORTERS of DENTISTS SPECIALTIES

SOLE AGENTS FOR THE U. S.

190 HUDSON ST. HOBOKEN N. J.

CUT OF FOIL ENVELOPE

Foil, $4.00 per ⅛ oz., $15.00 per ½ oz., $30.00 per 1 oz.

On orders of two ounces and more at a time a reduction of 50 cents per ounce will be given.

This gold is made in reference to the HERBST method of filling teeth with the engine. It has also proven a very desirable article for the *mallet* and *hand-pressure*.

We claim it to be superior to any other make for its peculiar *softness*. It easily adapts itself to the walls of the cavity, and when properly manipulated it makes a *solid* and *cohesive filling*. If it is to be used cohesively, a slight *warming over* the flame will have the desired result.

Very good reports have been received from prominent practitioners.

Timme's Imported German Phosphate Cement, per box, $1.00.

CUT LABEL FOR CYLINDER BOXES.

CASH MUST ACCOMPANY THE ORDER.

1/8 oz

CELEBRATED

WOLRAB'S GERMAN GOLD.

№ 0 1 2 3 4

CHEMICALLY PURE

for the HERBST METHOD

MADE EXPRESSLY of filling TEETH

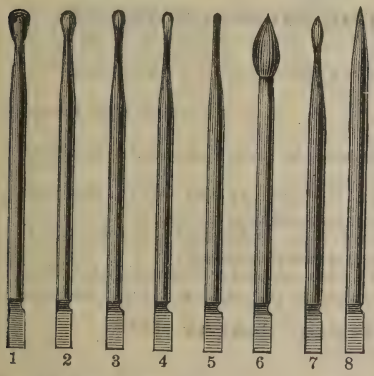
C. A. TIMME & Co. IMPORTERS OF DENTISTS SPECIALTIES

HUDSON St. HOBOKEN N.J.

SOLE AGENTS FOR THE U.S.

Cylinders, $4.50 per ⅛ oz., $17.00 per ¼ oz., $34 00 per 1 oz.

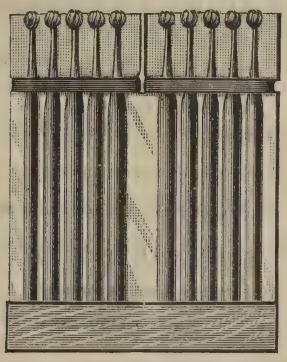
Instruments for the Herbst Method



Made of Agate, per set, - - - $10.00
The same made of Steel, as shown in the cut, per set, - - - - - 4.00

3-5-AN-2.

Imported Burs, Stone Cut.



Unequaled in temper, arranged on wooden cards, per card of ten, - - - $ 3.00
In boxes of ten cards, - - - 25.00

HARDMAN'S WHITE ALLOY

Takes the place of gold for filling front, or any teeth.

PRICE, $3.00 PER OZ.

Test for Color—Place a button of Amalgam, that has one surface polished, into a solution of 40 to 60 grs. of sulphuret of Pottassa in 1 oz. of water. Let remain 24 to 48 hours.

Test for Leakage—Fill a small glass test tube with it, just as you would a cavity in a tooth, and drop it into a bottle containing an alcoholic solution of red aniline.

This Alloy Stands These, and Any Other Tests Deemed Requisite to Perfection.

HARDMAN'S SUPERIOR AMALGAM

Surpasses all others for strength and density of texture. Use it for Crown Work, in Molars, &c.

PRICE REDUCED TO $4.00 PER OZ.

Large discounts on both of these in quantities.

MADE AND FOR SALE BY

J. HARDMAN, MUSCATINE, IOWA.

If your depot does not keep them send to the proprietor for them.

8-4-AN-¼

DIBBLE'S WHITE AMALGAM

A Gold Alloy. $5.00 per ounce.

Manufactured only by

W. H. DIBBLE, MIDDLETOWN, CT.

For sale by S. S. WHITE DENTAL M'F'G CO., or sent by mail by the manufacturer.

ALSO MANUFACTURER OF THE DIBBLE PLUGGER.

THE FOLLOWING TESTIMONIALS ARE RESPECTFULLY OFFERED.

Dibble at present is ahead on Amalgam.
NEW YORK, Jan. 9, 1883. J. W. CLOWES, 667 Fifth Avenue.

I believe it to be the best article of the kind in use.
W. H. DWINELLE, M. D., 27 West 34th St., New York.

I take pleasure in recommending it as the best now known.
GEORGE H. PERINE, 74 West 50th St., New York.

Have used it three years, and it has given me better results than any other.
O. E. HILL, M. D. S., 160 Clinton St., Brooklyn, N. Y.

I am satisfied it is the best in use. I can recommend it to the profession.
C. E. GRAVES, 393 Jay Street, Brooklyn, N. Y.

It is the best I have ever used. MILES H. DODGE, 20 E. 33d St., New York.

$5.00 per oz. or 3 oz. for $12.50. Sent by Mail.

3-5-AN-½.

E. KEARSING'S

COHESIVE AND SOFT

GOLD FOIL,

Used by many of the prominent dentists in this country and abroad.

——ALSO EXTRA FINE——

TIN FOIL AND AMALGAM.

MR. E. KEARSING, *Dear Sir:*—After having used your gold foil for five years, I can say that it gives me better satisfaction than any other that I have used. For restorations and all work where I greatly depend upon cohesive qualities it never fails.

Yours truly, A. H. SCOFIELD, D. D. S.,
113 W. 47th St., New York City.
September 8, 1884.

MR. E. KEARSING:—After using your gold foil about five years with great satisfaction, I feel that I cannot get along without it. It is especially valuable for small cavities, and for fine work in approximal cases. Respectfully, J. N. FARRAR.

MR. E. KEARSING, *Dear Sir:*—After having used your gold, both soft and cohesive, for nearly five years, I find it has given me entire satisfaction in all cases.

Yours truly, J. BOND LITTIG, D. D. S.,
113 W. 47th St., New York City
September 13, 1884.

Dear Sir:—After using your gold foil almost uninterruptedly for the last six years, I have no hesitation in stating that it stands without a rival for performing what are known as contour operations. It answers equally well for small fillings unannealed when properly manipulated. Very truly, H. C. LONGNECKER.

FLUSHING, L. I., Sept. 11, 1884.

E. KEARSING, ESQ., *Dear Sir:*—In reply to your inquiry about my opinion of the merits of your Gold Foil, I can say frankly, after having had over thirty years' acquaintance with it, that it works and wears beautifully. No gold foil ever had a better endorsement than that given your gold foil by the late Dr. Marshall H. Webb, whose elegant operations live to do honor to him and reward you. Your cohesive foil, No. 4, folded into 32 or 48, is daily giving me great satisfaction, being uniformly impacted from beginning to end of the filling with the Electric Plugger. Yours very truly, E. PARMLY BROWN.

101 HOYT STREET,

P. O. Box 182. BROOKLYN, N. Y.

7-4-AN-½

"THE OLD RELIABLE."

LAWRENCE'S AMALGAM.

RES NON VERBA
A. L. LAWRENCE
TRADE MARK

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the Trade should be addressed accordingly.

Price, $3.00 per Ounce. For sale at all respectable Dental Depots.

Manufactured only by

AMBROSE LAWRENCE, M. D., 476 Columbus Avenue, Boston, Mass.

10-4-AN-¼

The Wilmington Dental Manufacturing Co.

MANUFACTURERS OF

ARTIFICIAL TEETH,

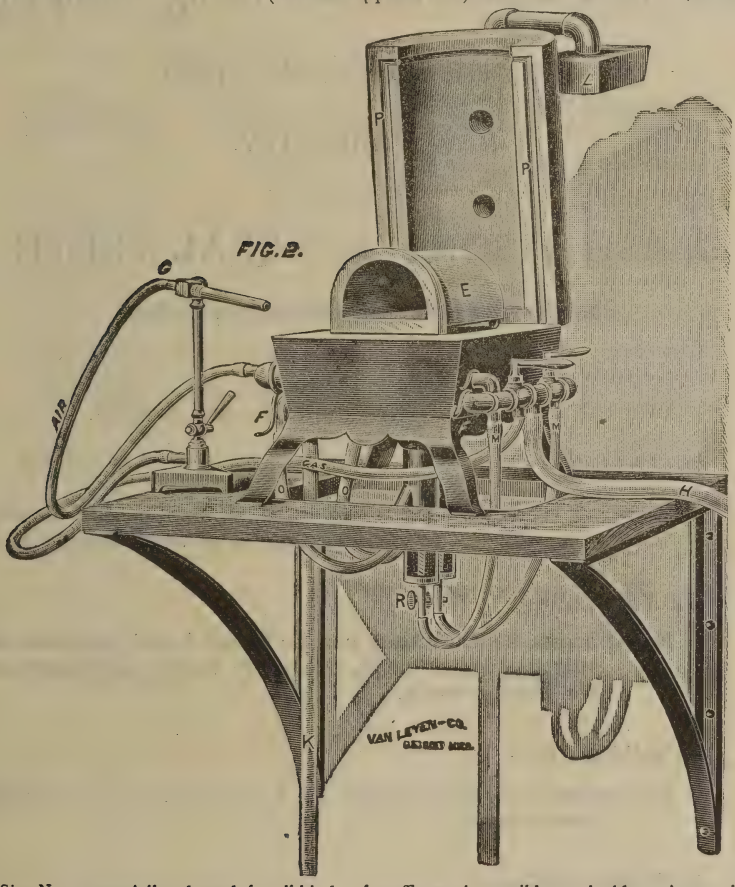
Nos. 1010 and 1012 KING STREET,

WILMINGTON, DELAWARE.

Having been justly recognized as manufacturing a very SUPERIOR TOOTH at a very moderate PRICE, they now avail themselves of this medium by which they hope to present their merits to the Dental Profession. They have now perfected their designs as to the character of their MODELS, and have fully succeeded in being able to present to the Dentist an opportunity to select a SHADE of enamel which will harmonize and correlate with that of the natural tooth.

☞ *For sale by Dental Dealers everywhere. Send for price list.*

DR. C. H. LAND'S
COMPOUND
GAS OR GASOLINE FURNACE
(Patent Applied for.)



Size No. 1, especially adapted for all kinds of muffle work, crucible work, blow-pipe work, forging and brazing. It is the most complete furnace ever devised for the chemist, assayer, jeweler, dentist and metallurgist. Continuous gum and porcelain can be baked in from 15 to 20 minutes in the most perfect manner and with unerring precision. Send for descriptive circular.

Instructions—In order to enable those who contemplate using gas furnaces and to comprehend their great superiority over coal or coke fires, my laboratory will be open free to all, and with those who desire a special course in continuous gum work, enamel metallic coatings and enamel fillings, favorable arrangements can be made. A visit to my laboratory will be of the utmost value. Here furnaces are operated by both foot and steam power, using either gas or gasoline. Thus practical working can be seen to the best advantage.

Address, **C. H. LAND, 264 Woodward Ave., Detroit, Mich.**

10-6-AN-1.

GEO. E. HODGE, President. AUG. WEBER, Secretary

THE

New York Dental Manufacturing Company

1300 BROADWAY, COR. 34th STREET,

NEW YORK CITY.

C. ASH & SONS' MINERAL TEETH

Possess the following desirable qualities:

1. *NATURAL FORMS*—

   In great variety and of various sizes and lengths.

2. *COLOURS*—

   Ranging from very light to very dark shades, and closely resembling the various colours of the human teeth.

3. *TEXTURE*—

   Non-porous, so that they can be ground and polished to suit particular cases, therefore being well adapted for Bridge work.

4. *STRENGTH*—

   Possessing unusual strength on account of their fine and close texture.

5. *SOLDERING*—

   Bearing in an extraordinary manner the sudden transitions of temperature so that they can be soldered without cracking.

We especially invite comparison to each of these points enumerated above. There are no teeth in the world made to compare with them

THE "DIATORIC" TEETH

without pins, are superior to any cheap tooth made in this country.

The very high reputation obtained all over Europe and other parts of the world, by the Messrs. CLAUDIUS ASH & SONS, for the superior excellence of their

Mineral Teeth and Dental Rubbers,

seems to be rapidly coming to them in this country.

We have the largest stock of these goods of any depot in the United States, and are prepared to give particular attention to filling orders, and to the selection of teeth for special cases.

Hand Piece for Dental Engine, - - - - $10.00.
Right Angle Attachment, - - - - - - 6.00.

Stone Cut Burs, per Doz.

000 to 8	$3.00
9 to 11	4.20
12 to 14	4.80

Keen-edge Burs, per Doz.

000 to 8	$2.25
9 to 11	3.60
12 to 14	4.20

Finishing, per Doz.

3 to 8..50 c. each	$6.00
9 to 11..60 "	7.20
12 to 14..75 "	9.00

Finishing, per Doz.

3 to 8..40 c. each	$6.00
9 to 11..60 "	7.20
12 to 14..75 "	9.00

Drills, per Doz.

00 to 8	$2.00
0 to 5, flexible	4.00

Flexible Burs, per Doz.

1 to 5...40 c. each	$4.80
Morey Drills, 50 c. each	6.00

We shall soon issue a card for a new variety cavity cutting stone cut bur.

THE MORRISON DENTAL CHAIR.

Reissue May 15, 1877. English Patent Dec. 7, 1867.

PRICES.

In Best Quality Green or Maroon Plush or Plain Morocco	$130 00
In Real Morocco, Embossed	140 00
In Finest Quality Green or Maroon Plush, puffed and trimmed with Plush	150 00
Spittoon Attachment, extra	4 00

BOXING FREE.

STUDENT'S MORRISON CHAIR.

To meet an often-expressed want of a first-class chair at a low price, the Student's Morrison was brought out. It is, in all respects, equal to the regular Morrison chair, except that it is upholstered in a corded material, instead of plush. It presents a very attractive appearance, and will wear nearly as well as plush.

PRICE—In Corded Upholstery..... $105 00

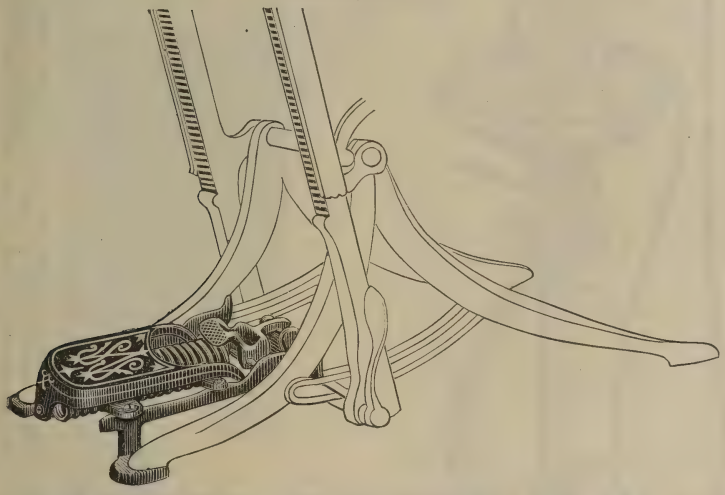
We supply either style of the Morrison Chair, with our without Casters. When ordered with Casters, the price is $10.00 extra.

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

BALANCE-SPRING ATTACHMENT.

(Patent applied for.)



This Attachment supplies the only lack of the Morrison Chair as sold for many years and used by thousands of dentists,—an easy tilting movement. It consists of a strong spiral Spring operating a latch which engages with a rod attached to the connecting-bar at the bottom of the movable uprights. The attachment is made by means of a clamp, without interfering with the mechanism which locks the chair. In tilting the chair and returning it to the upright position, the Spring counterbalances the weight of the patient, thereby lightening the labor of the operator. The desirability of such a labor-saver will be specially appreciated by those who have had occasion to handle a heavy patient in this chair. Its advantages are most apparent when the chair is at the usual height for operating. The frame which supports the spring is made to form a convenient foot-rest for the operator. The latch has a toe-piece by means of which it may be readily disengaged, thus dispensing with the use of the Spring when desirable.

The Balance-spring Attachment can be applied to any Morrison Chair in a few moments. Made of iron, japanned and gilded.

Price..... ...$12 00

CHAIR OIL.

We are frequently asked what kind of oil should be used in the Wilkerson and Pedal-Lever Dental Chairs. We reply to all such inquiries that the oil we send with them was specially prepared for us after a long course of experiments in our effort to obtain a mixture of oils that would stand the variations of temperature without gumming. Several complaints have been received from dentists that their oil-wells leaked, but on examination we have found that in renewing the oil they have put in too much,—in fact, filled them above the packing of the oil-well, and in time it soaked through the packing and trickled down the outside of the well. We now label every can that is sent out, and each contains the proper quantity for the Chair, as marked, viz.:

3½	pints	for the	Wilkerson Low-Base Chair	$1 00
3	"	"	" Medium	1 00
4	"	"	" High	1 25
4	"	"	" 7 in. High-Low Chair	1 25
4	"	"	" 9 " " "	1 25
5	"	"	" 11 " " "	1 50
5	"	"	" 13 " " "	1 50
4	"	"	S. S. White Pedal-Lever Chair	1 25

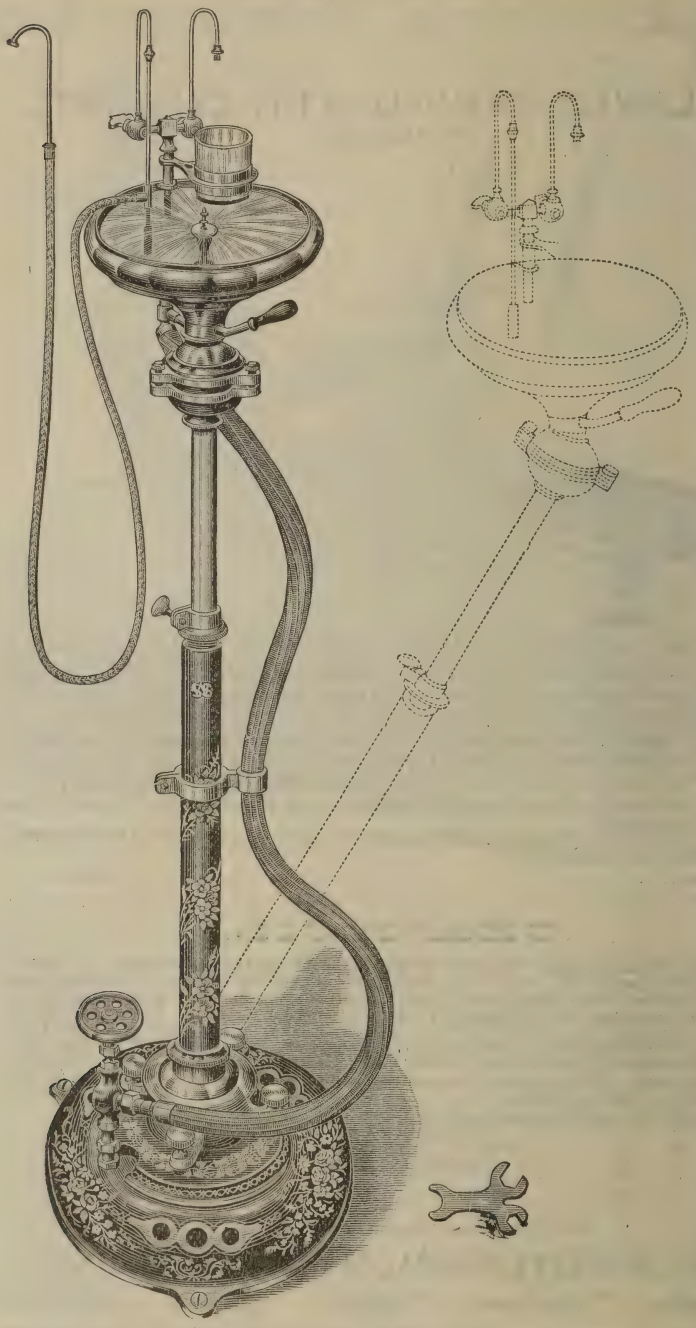
THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago. Brooklyn.

THE ADJUSTABLE FOUNTAIN SPITTOON.

Patented May 21, 1881.

REDUCTION IN PRICES.



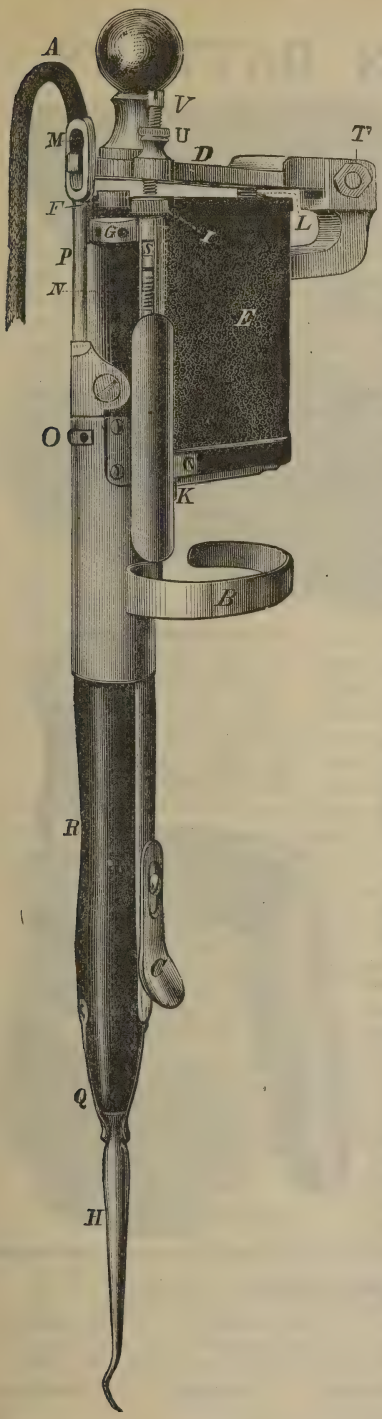
The top of the bowl of the Adjustable Fountain Spittoon, when in its lowest position, is 20 inches from the floor; at its greatest height, 44 inches, giving a vertical range of 15 inches. When lowered, the center of the bowl may be placed anywhere within a circle 13 inches in diameter; at its greatest height this circle is 23 inches in diameter. Within these limits the bowl may be adjusted at any height or inclination, by means of the universal ball-and-socket joints. The mouth of the bowl is 9 inches in diameter; the depth 3 inches. The whole is well made and handsomely finished, forming an attractive piece of office furniture.

Complete, with two Faucets and Saliva-Ejector with Silk-covered Tubing	$70 00
Complete, with two Faucets, without Saliva-Ejector	64 00
Complete, with one Faucet, without Saliva-Ejector	58 00
Boxing	2 00

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

The Bonwill Electro-Magnetic Mallet,



With Modifications made by Marshall H. Webb.

Patented Jan. 26, 1875; Nov. 16, 1875; Dec. 14, 1875; Feb. 15, 1876; Oct. 15, 1878.

This Mallet combines the most valuable inventions of Drs. Bonwill and Webb. It needs no words of encomium to commend it to those who are familiar with its merits. It is indorsed by many of the most skillful operators in the world. When properly understood, it will be found to approach more nearly the ideal condensing instrument than any other ever offered in the profession.

Some of its principal advantages are:

First—The blow is delivered upon the packing-instrument just when its force is greatest, because the attraction of the magnets increases constantly as the mallet approaches them until the circuit is broken.

Second—The force of the blow can at all times be controlled by the operator.

Third—Properly used, it condenses the gold thoroughly and evenly throughout the entire filling.

Fourth—Gold may be impacted against thin, rail walls with ease and without fracturing the enamel.

Fifth—It saves the operator time and the fatigue attendant upon the use of a hand, automatic, or foot-power mallet.

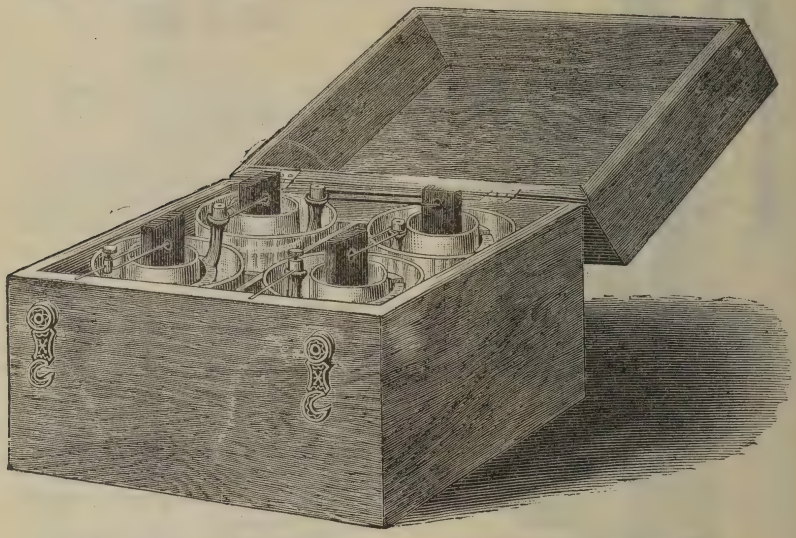
Sixth—When its operation is understood and the battery is kept in order as per instructions which accompany each Mallet sold, the instrument does not require any more attention than is involved in the care of a watch.

PRICE.

Mallet, with seven feet Silk Cord, and Connecting Posts	$35.00
Bunsen Battery, with four Cells Complete, in Box	12.00
Mallet and Bunsen Battery, Complete	47.00
Improved Plugger Battery, four Cells, Complete	16.00
Mallet and Improved Plugger Battery, Complete	51.00

THE S. S. WHITE DENTAL MANUFACTURING CO.,
Philadelphia, New York, Boston, Chicago, Brooklyn.

THE BUNSEN BATTERY.



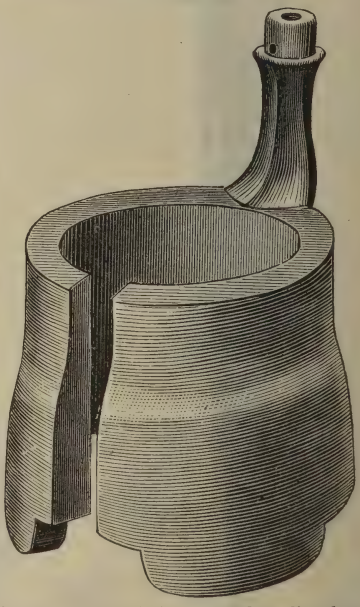
IMPROVED CONNECTIONS

—FOR—

BUNSEN BATTERY.

Suggested by Dr. J. Rollo Knapp.

ZINC FOR BUNSEN BATTERY.



No. 1.

No. 2.

By the use of these connections, the old forms of carbon clamps, platinum-faced wires, posts for zincs, and cord connections are dispensed with.

Their simplicity can be readily understood at a glance. The looped end of wire No. 1 is sprung over the round portion of the zinc stem and the flat platinum-faced buttons grasp the carbon. There is but one zinc binding-post used, viz: In the first zinc to which the wire or cord is attached. To the last carbon is connected wire No. 2, which is fastened to the binding-post to which the other wire or cord is attached. They can be put on and taken off in an instant, and if kept clean will make a firm and positive contact. In adopting these connections we were obliged to alter the form of the zinc stems, but to enable those who have the old forms of connections to continue their use we have drilled and tapped holes in the stems to admit the screws of the old-style brass posts. Hereafter this style of zinc will be supplied on all orders.

Price, Zincs	each,	$0 75
" Knapp's Battery Connections, complete, per set of 4		2 00
" " " " separately, No. 1	each,	50
" " " " " " 2	"	65

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

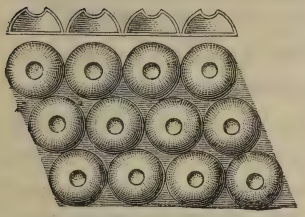
Important to Dentists Using the Electric Mallet.

Complaints in regard to the working of the Electric Mallet have, in many instances been found to depend upon the fact that the instruments used with it were not of our manufacture, and not properly fitted to the Mallet. To insure satisfactory results with the Electric Mallet, the most scrupulously exact adaptation of the instrument is required. The most trifling deviation in either of several measurements will be fatal. Each instrument must be tried in master gauges to prove its absolute correspondence. When it has been so proved our workmen are not allowed even to polish the swell end of the plugger for fear of destroying its efficiency. Instruments made in imitation of our manufacture, however closely resembling them, cannot in the nature of things be expected to give satisfaction.

SURFACE COHESION FORMS FOR ARTIFICIAL DENTURES.

INVENTION OF DR. JOSEPH SPYER.

PATENTED JANUARY 6, 1885; DECEMBER 8, 1885.



A thin metallic form, the surface of which is covered with minute papilliform prominences—shown magnified four diameters—which by displacement of mucus at the points of gum contact effect surface cohesion as if the denture were glued to the gums, yet cause no irritation and leave no marked indentations. Adapted for either upper or lower plates. By the aid of this device strong cohesion can be had with a narrow plate, and thus the sense of taste be left unimpaired. Lower plates so made are very firm. Put up in packages containing one dozen forms, which can be cut for either upper or lower plates. Full directions accompany each package.

PRICE..... .....per box containing one dozen Forms, $1.00
RUBBER CEMENT..... .....per bottle, .35

DENTOPLASTIQUE.

This Cement is of the zinc phosphate order, and superior to most of its class. Absolute permanence under all conditions of use and abuse cannot be justly claimed for any plastic material, but if this cement be properly mixed and used precisely as directed it may be expected to last in most mouths for years without noticeable waste or wear.

We present it with the assurance that its merits will entitle it to confidence when manipulated in exact accordance with the directions.

Made in four colors :

PEARL, CANARY,
IVORY, COFFEE.

PRICE..... ..per box, $1.00

THE S. S. WHITE DENTAL MANUFACTURING CO.,

PHILADELPHIA, NEW YORK, BOSTON. CHICAGO, BROOKLYN.

To the Dental Profession.

GENTLEMEN:

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

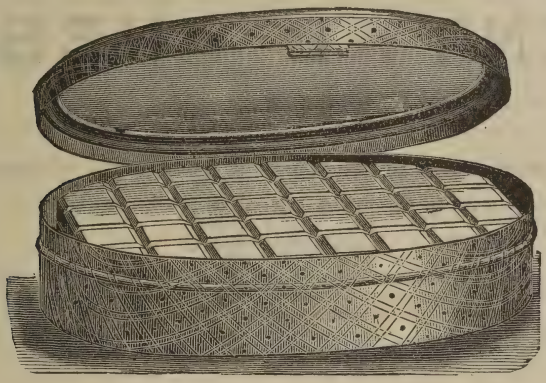
I. W. LYON, D.D.S.,

88 MAIDEN LANE, NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

DR. I. W. LYON'S TOOTH TABLETS



For Purity, Efficiency, Neatness and Convenience these Tablets have no equal as a Dentifrice. They are put up in Seamless Metallic Boxes, which are impervious to air and moisture, and may be carried on a journey without danger of breaking.

HIGHLY INDORSED BY EMINENT DENTISTS.

PRICE **50** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

DR. I. W. LYON'S

PERFECT TOOTH POWDER

ENAMELLED METAL BOX REDUCED IN SIZE.

This Powder is carefully prepared by an experienced dentist, familiarized by practice with the wants of the teeth. It is absolutely pure and free from acid, grit, or other hurtful substances, and is highly recommended by the most eminent men in the profession. It gives a *delightfully refreshing sensation* in the mouth, strengthening and healing the gums, and imparting a fragrance to the breath which is very agreeable.

Put up in an enamelled metal box with sprinkler top, free from the mishaps incident to glass or wood, and very convenient for use, especially in traveling.

ENAMELLED PAPER CARTON REDUCED IN SIZE.

PRICE **25** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

I. W. LYON, D.D.S., PROPRIETOR,

88 MAIDEN LANE, NEW YORK.

3-5-AN-2

AKRON
DENTAL RUBBER

The materials of which this Rubber is composed
are prepared by new processes,
which insure

ABSOLUTE PURITY,

Resulting in a Product of Wonderful

DENSITY, FIRMNESS AND STRENGTH.

It is especially designed to meet the requirements of those who seek to produce the most perfect and artistic work.

It is exceedingly tough and light, and takes a beautiful polish.

Plates may be made very thin without danger of splitting or crumbling away about the edges.

It can be used with the best results for making partial lower dentures, an advantage which no other rubber possesses.

It has the unqualified approbation and endorsement of the profession everywhere, and never fails to give satisfaction.

It will cost you nothing to try it.

Send for samples and prices.

AKRON RUBBER WORKS,

AKRON, OHIO.

Sold by all Dental Depots.

11-5-AN-1

PARSON'S EUREKA SILVER ALLOY.

I am manufacturing and offering for sale a superior Amalgam or Silver Alloy, which has the following properties: It is a quick setting alloy, has great edge strength, therefore a superior alloy for mounting artificial crowns on natural roots. Fillings may be finished and polished in fifteen or twenty minutes after inserting, and retain their polish and silvery whiteness remarkably.

It does not spheroid or bulge like many alloys of inferior grade.

If you wish to use one of the nicest working alloys in the market, send for ½ oz., **$1.50**; 1 oz., **$3.00**; or 4 oz. for **$10.00.**

Let the profession give my alloy a fair and impartial trial, and I feel confident I shall receive a liberal amount of patronage. Respectfully,

DR. W. H. PARSONS,

Sole Proprietor and Manufacturer. WAMEGO, KANSAS, U. S. A.

TESTIMONIALS.

HOUSTON, TEXAS, April 26, 1885.

DR. PARSONS—*Dear Sir:* The Alloy came safely to hand. I am very well pleased with it. Very respectfully, DR. S. E. JONES.

ROCHESTER, N. Y., April 13, 1885.

H. W. PARSONS—*My Dear Friend:* The boxes of Amalgam were duly received, and I consider it very nice indeed. Respectfully Yours, DR. S. G. WOOD.

RICH HILL, Mo., Feb. 9, 1886.

DR. H. W. PARSONS—*Dear Dr.:* Yours of the 5th inst. at hand, and in reply would say your Eureka Alloy is the best I ever used. Respectfully, C. E. JONES, D.D.S.

COLUMBIA, Mo., March 16, 1886.

DR. H. W. PARSONS—*Dear Sir:* I have used your Eureka Silver Alloy for one year, and am much pleased with it. I find its properties all that you represent them to be.

Respectfully, DR. N. HOCKENSMITH.

7-6-00-½

W. C. JACOBS, MANAGER.

1-7-AN-½

CHERRY MALT PHOSPHITES.

This preparation is believed to be the only Malt Extract continuously acceptable to the stomach. The attention of those who have ceased prescribing other extracts of malt because of excessive sweetness is specially called to this.

CHERRY MALT PHOSPHITES is a combination of Wild Cherry, the condensed extract of the important Cereals and the Elixir of the Hypo-phosphites. Its flavor is delicious, and it is medicinally invaluable in all cases of General and Nervous Debility, Dyspepsia, Imperfect Nutrition, Impure Blood, Wasting Diseases of Children and Adults. It is extensively prescribed in European countries, and has received the cordial endorsement of the leading practitioners of this country.

Price $1.00 per Bottle.

To Physicians not familiar with its merits, who will pay express charges, we will send a full-sized bottle *free.*

Please mention this journal.

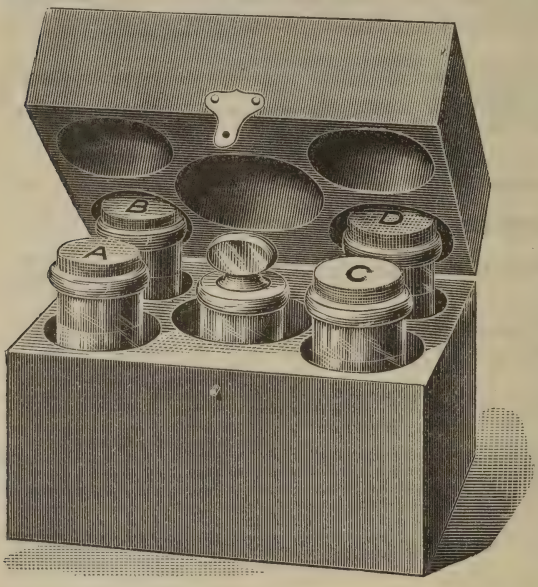
LIEBIG'S LIQUID FOOD,

A Concentrated Extract of Beef possessing both tonic and nutrient properties.

MANUFACTURED ONLY BY THE

LIEBIG PHARMACAL CO., N. Y.

SMITH'S ADAMANTINE PHOSPHATE CEMENT.



INSOLUBLE.

TWO COLORS.

Price, - - $1.00.

Also in Cedar Cases, as shown in cut, containing four colors of Powder and one bottle of Liquid, glass-stoppered.

A, White; B, Brown; C, Yellow; D, Bluish.

PRICE, - $2.00

SMITH'S

Oxychloride of Zinc.

PRICES—Plain Form, one-ounce, - - - - - - - each $1.00
Cedar Cases, as shown in cut, containing four colors of Powder and one bottle of Liquid, glass-stoppered, - - - - " $2.00
A, White; B, Brown; C, Yellow; D, Bluish.

10-6-00-½ **DR. J. H. SMITH, New Haven, Conn.**

TO INVENTORS.

If you desire to patent your invention, enclose your address, *with stamp for reply*, and the undersigned will take pleasure in giving you the benefit of his *large* experience with United States and foreign patent lawyers.

B. M. WILKERSON, M. D., D. D. S.,

(Inventor of the Wilkerson Dental Chair, etc.)

No. 1215 Madison Ave., Baltimore, Md.

12-6-00-½

PURE PRODUCTS FOR DENTAL PRACTICE!

Among the preparations we manufacture which are of use to the Dental Profession, we have pleasure in calling attention to the following, which we believe, on account of purity and convenience, will commend themselves to our dental friends.

COCAINE.

Cocaine Alkaloid, pure in crystals; Citrate solution, 4 per cent.; Hydrobromate, pure in crystals and in solution, 4 per cent.; Muriate, pure in crystals and solutions, 2 and 4 per cent.; Oleate, 5 per cent., and Salicylate solution, 4 per cent. Also *Complete Cocaine Case*, embracing every essential for topical and hypodermic use. Send for pamphlet.

Pure MENTHOL, in crystals and pencils; pure CHLOROFORM; BROMIDE OF ETHYL; NITRITE OF AMYL PEARLS, invaluable in case of sudden syncope and a restorative of enfeebled circulation.

PARKE, DAVIS & CO.,

MANUFACTURING CHEMISTS,

DETROIT, MICH. New York Branch: 60 Maiden Lane.

1-7-AN-⅓.

ALFRED J. NICKOLDS,

Refiner and Manufacturer of

Dentists' Chemically Pure 1000 Fine

GOLD FOILS, GOLD PELLETS,

TIN FOIL, ETC.,

238 McDonough Street,

BROOKLYN, N. Y.

Special attention is invited to *Nickolds' Improved Soft Gold Foil* and *prepared Pellets;* pronounced the best article of Gold Foil extant.

7-4-AN-¼

LINE YOUR RUBBER PLATES

— WITH —

Robinson's Improved

VULCANIZABLE GOLD.

It is now more than two years since Vulcanizable Gold has been introduced to the profession, and the great improvement now made gives it great superiority over all other manufactures now before the public for the following reasons:

First—It is heavier than any other manufacture in the market.

Second—It is absolutely pure gold, 1000 fine.

Third—It is more easily applied, on account of its flexibility and cohesive qualities.

Fourth—It is so thoroughly incorporated with the rubber in the plate that it is part of the plate itself, and will not peel or wear off.

Fifth—It comes out of the vulcanizer thoroughly bright and polished.

Ask your dealer for the

IMPROVED VULCANIZABLE GOLD

AND TAKE NO OTHER.

S. S. WHITE DENTAL M'F'G CO.,

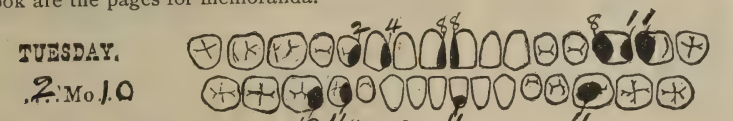
SOLE AGENTS.

1-5-AN-1.

THE DIAGRAM
APPOINTMENT BOOK
And DIARY.

SOMETHING NEW.
SOMETHING DESIRABLE.

The "Diagram" Appointment Book and Pocket Diary is a new book suggested by practical dentists, and meets the wants of the profession. The "Diagram" Appointment Book is 6¾ x 4¼ inches. In the front it has calendars for 1886, 1887, 1888 and 1889, and a table to show the number of days from any day in one month to the same day in any other month. The new feature of the book combines with an appointment book a DIAGRAM for registering the work to be done, or to make memorandum of the work when finished, by having a diagram for each day, and the diagram in such shape as to be efficient and yet not make the book bulky and unhandy. There are one week's appointments on two opposite pages, and, therefore, six diagrams on same space. In the back of book are the pages for memoranda.



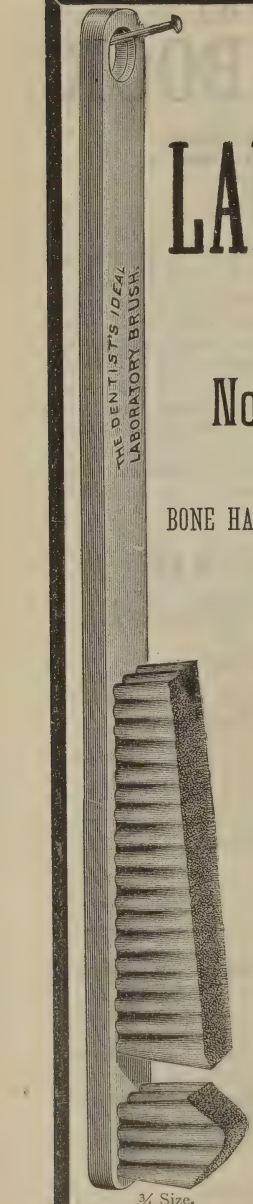
8	Miss Frailey	1	P.W. Peck
9		2	Edgar Thomas
10	Bertie Doak	3	
11	Mrs Harmon	4	Paul Ross
12		5	

The above is a facsimile of one day's work in the "Diagram Appointment Book;" the appointments are made as usual, and the fillings are accurately noted on the diagram. No ledger or other memorandum is necessary for immediate use; at leisure the work may be copied into the large ledger, if desired. After each persons name a note may be made of the amount charged or paid. It will be seen that it is easy to keep a record on this diagram of the work of this day, or of any day, by letting the hour of appointment stand for that person in the diagram; thus the figures 8 in the diagram stand for Miss Frailey, the 8 o'clock appointment.

There can be no disappointment in the paper, ruling, printing or binding, as they are all first-class in every particular.

PRICE 50 CENTS. TRADE SUPPLIED.

WELCH, DENTAL CO., Publishers.



¾ Size.

THE DENTIST'S IDEAL

LABORATORY BRUSH

PATENTED.

No Predecessors and No Rivals!

BONE HANDLE. IVORY FINISH. PURE BRISTLES. EXTRA STIFF.

POINTS:

The tuft of stiffest unbleached Okatka Bristles is made FOR WORK, and will thoroughly cleanse any cavity.

The clearing space removes the old trouble of breaking down of bristles.

The face of the Brush cut on an angle brings the greatest length where there is the greatest wear.

NO BRUSH MADE CAN EQUAL IT!

NO TAMPICO!

POPULAR PRICES.

35 Cts. Each. Three for $1.00

Elegantly put up in Single Boxes.

Florence Manufacturing Co.,

FLORENCE, MASS.

COMPOSITION SILVER STRIPS.

(PATENT APPLIED FOR.)

Invention of Dr. E. Parmly Brown.

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To be used with wet pulverized pumice, or other suitable powder.

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Put up in packages of one dozen, in a variety of sizes.

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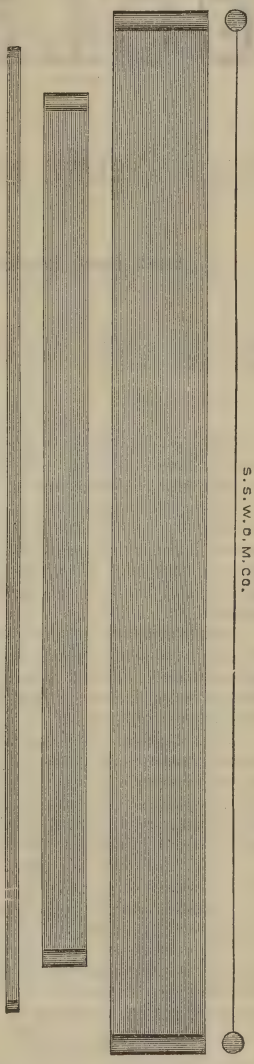
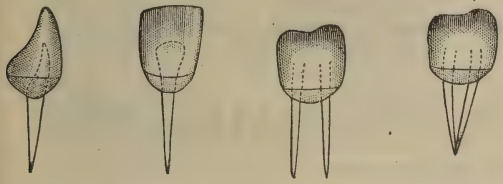


DR. E. PARMLY BROWN'S TOOTH CROWNS.

PATENT APPLIED FOR.

FIG. 1. FIG. 2. FIG. 3. FIG. 4.



These cuts represent position and shape of pins in the tooth.

For full description, see *Dental Cosmos*, September, 1886, pages 583, 588 and 589.

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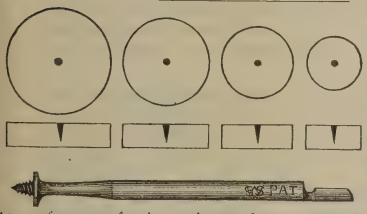

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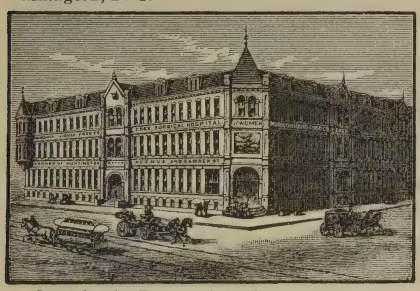

Its value was recognized by the profession from results obtained in the Free Hospitals that have been established and supported by our Mr. A. L. Murdock during the last four years. They now equal

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Instruments and appliances for chemical departments will cost from $25.00 to $40.00.

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CHICAGO, February, 1887.

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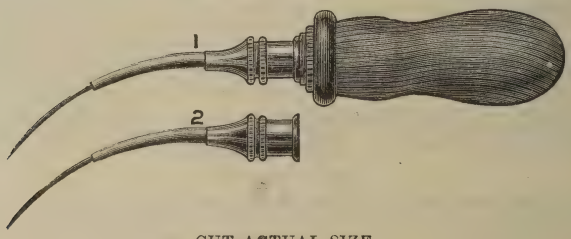

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Vol. VIII. JUNE, 1887. No. 6.

13 JUN. 87

THE

Independent Practitioner:

A Monthly Journal

DEVOTED TO

DENTAL AND ORAL SCIENCE.

W. C. BARRETT, M. D., D. D. S.,

EDITOR.

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Aquæ	f ʒ vss

M

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M

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℞

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M

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Table of Contents—June.

ORIGINAL COMMUNICATIONS:

Contributions to the History of Development of the Teeth. Carl Heitzmann and C. F. W. Bodecker. 281
Robert Koch—His Work and Methods. Geo. W. Lewis, Jr. 290
An Ovarian Cyst. W. C. Barrett. 294
Clinic of Prof. Garretson. Robert S. Ivy. 298
A Pain Obtunder. F. H. Brimmer. 301

REPORTS OF SOCIETY MEETINGS:

Illinois State Dental Society. 303
The Dental Society of the State of New York. 310
Clinic of the Chicago Dental Club. 312
New York Odontological Society. 315
Central Dental Association of Northern New Jersey. 318

EDITORIAL:

The A. D. A. Meeting. 320
Rest for Dentists. 325
A Practical Scheme. 328
The Bonwill Dental Engine and Mallet. 330

CURRENT NEWS AND OPINION. 331

Index to Advertisements.

Horsford's Acid Phosphate....Cover Page 2
Charles H. Phillips Chem. Co.. " 2
Dr. Robert S. Ivy..... " 2
Underwood Spring Water..... " 3
R. S. Williams..... " 4
Listerine..... Adv. Page 1
A Sensitive Point ..... " 2
Munn's Patents..... " 2
Detroit and Cleveland Nav. Co. " 2
The Medical Register ..... " 2
Seabury & Johnson..... " 3
Claudius Ash & Sons..... " 4 & 5
Acme Gold Foil..... " 6
American Dental Manuf. Co... " 7
Caulk's Filling Materials..... " 8 & 9
Murdock's Liquid Food Co.... " 10
Edward Rowan & Co..... " 11
C. A. Timme & Co..... " 12 & 13
Hardman's Amalgams..... " 14
Dibble's White Amalgam..... " 14
E. Kearsing..... " 15
Lawrence's Amalgam..... " 15
Wilmington Dental Mf'g Co.... " 16
Gasoline Furnace..... " 17

Baker, Jones & Co.... .....Adv. Page 18
New York Dental Manuf'g Co.. " 19
S. S. White Dental Manuf'g Co. " 20–25
I. W. Lyon..... " 26 & 27
Akron Dental Rubber..... " 28
Parson's Eureka Alloy..... " 29
Cherry Malt Phosphites..... " 29
J. H. Smith's Cements..... " 30
To Inventors..... " 30
Parke, Davis & Co..... " 31
A. J. Nickolds..... " 31
Vulcanizable Gold..... " 32
Welch Dental Co..... " 33
Laboratory Brush..... " 34
Dr. Brown's Univ. Screw Clamp " 35
Daly Gold Lining Dental Co.... " 36
Ohio College of Dental Surgery " 37
Penn. College of Dental Surgery " 37
New York College of Dentistry " 38
Philadelphia Dental College.... " 39
Chicago College of Dent. Surg'y " 40 & 41
Dental Review..... " 42
Dunn's Medical Syringe ..... " 42

The Independent Practitioner—Vol. VIII.

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THE

Independent Practitioner.

VOL. VIII. JUNE, 1887. NO. 6.

NOTE.—No paper published or to be published in another journal will be accepted for this department. All papers must be in the hands of the Editor before the first day of the month preceding that in which they are expected to appear. Extra copies will be furnished to each contributor of an accepted original article, and reprints, in pamphlet form, may be had at the cost of the paper, press-work and binding, if ordered when the manuscript is forwarded. The Editor and Publishers are not responsible for the opinions expressed by contributors. The journal is issued promptly, on the first day of each month.

Original Communications.

CONTRIBUTIONS TO THE HISTORY OF DEVELOPMENT OF THE TEETH.

BY CARL HEITZMANN, M. D., AND C. F. W. BÖDECKER, D. D. S., M. D. S.

CONTINUED FROM PAGE 235.

The formation of enamel commences about the sixth month of fœtal life, at a period when the dentine, which begins to form about the fifth month, has assumed a certain thickness. About the seventh month, we observe at the summit of the papilla a comparatively broad cap, the dentine, and above this a somewhat narrower layer of enamel. (Fig. 7.)

Investigations of the development of enamel are rendered difficult by the fact that the enamel organ is almost invariably found to be detached from the enamel and the papilla. This perplexity may be obviated, at least to a certain extent, by filling the cavity between the enamel organ and the enamel with celloidine. The cavity or space is evidently the result of shrinkage of the delicate myxomatous tissue in the enamel organ. A peculiar asymmetry

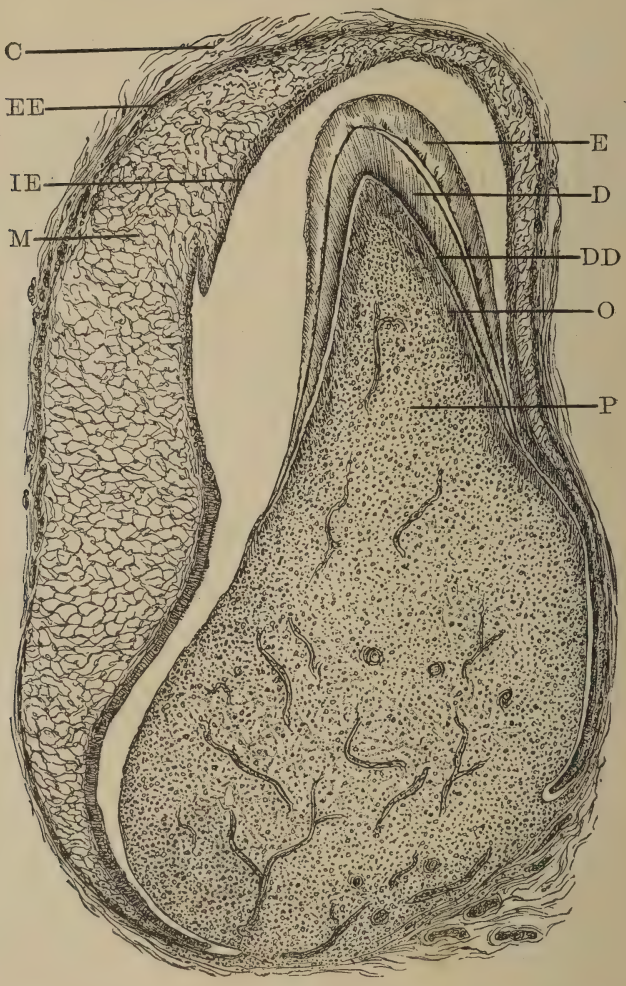


FIG. 7. *First formed dentine and enamel of human fœtus, seven months.*

E. Enamel cap.
D. Calcified dentinal cap.
DD. Non-calcified dentine.
O. Row of odontoblasts.
P. Papilla, with blood-vessels.
M. Stellate reticulum of enamel organ.
IE. Inner epithelium.
EE. Clusters of the remains of the outer epithelium.
C. Fibrous connective tissue.

Magnified 50 diam.

is often met with, one side being very broad, and the other very narrow. (See Fig. 7.) Peculiar indentations, also, are often seen in the course of the inner epithelium. Whether or not all of this is artificial, and due to shrinkage, we are unable to state, but it is certain that as soon as the enamel begins to appear, there are marked differences in the structure of the inner epithelium. At the bottom of the enamel organ, corresponding to the future neck of the tooth, the inner epithelium is found to be transformed into medullary tissue, and the edge between the inner and outer epithelium is likewise filled with medullary tissue. Higher up, along the border of the papilla, where there is as yet no enamel, we find formations resembling the original epithelia, but which in this condition are termed ameloblasts. The intermediate layer, in connection with the ameloblasts in this stage, is always markedly developed. Still higher up, where ready-formed enamel is present, the ameloblasts are much less regular, and we observe that they again split up into medullary corpuscles. From this we draw the conclusion that the original inner epithelium is transformed into medullary corpuscles, which give rise to the ameloblasts, and that the latter, before being transformed into enamel, once more break up into medullary tissue.

In a specimen prepared from a human fœtus of five months, there is scarcely a trace of the inner epithelium left. There we see nothing of the tissue except a succession of small glistening medullary corpuscles, which, by their arrangement in rows, remind us of their origin from previous epithelia. This tissue remains plainly visible, even in the sixth and seventh month of fœtal life especially, as mentioned above, at the fold corresponding to the edge of the enamel organ in the region of the future neck of the tooth. Higher up, the medullary corpuscles, which previously were scattered, once more assume a line-like arrangement, and gradually assume the shape of narrow elongated corpuscles, not always distinctly nucleated, and these elongated bodies, somewhat resembling the original columnar epithelia, are termed ameloblasts. (Fig. 8.)

One of the striking features in this process of transformation is the presence of a layer forming the outermost portion of the enamel organ toward the papilla. (Fig. 8, P.) This layer, with low powers of the microscope, appears to be made up of finely granular protoplasm with interspersed granular nuclei. Above this, marks

of division appear in the protoplasmic layer, and the marks correspond to the boundary lines of the rows of the glistening medul-

FIG. 8. *Segment near the fold of the enamel organ, corresponding to the neck of the future tooth of a human fœtus of the seventh month.*

PP. Papilla.
S. Stellate reticulum in an early stage of development.
M. Medullary corpuscles in a nearly uniform distribution, becoming elongated higher up, and arranged in rows.
A. Ameloblasts at an early stage of formation, composed of medullary corpuscles.
P. Protoplasmic bodies which produce the outermost portion of the enamel organ.

Magnified 1,200 diam.

lary corpuscles, the forerunners of the future ameloblasts. There is a transitional stage, as referred to in Fig. 8, in which the inner

portions of the ameloblasts are made up of several glistening medullary corpuscles, whereas the outermost portion is finely granular, or made up of a delicate reticulum. The ameloblasts in the seventh month of fœtal life are distinctly marked formations, and are present on such places only where enamel has not yet been formed. They join in length from the region of the neck to the summit of the crown. They are composed of finely granular protoplasm, with one or several nuclei, or sometimes without any distinct nucleus. Their general form is columnar, slightly broadened toward the papilla. Often, however, they exhibit parallel contours, or a wedge-shape, between two neighboring funnel-shaped ameloblasts. (See Fig. 6, A.) All ameloblasts are interconnected by delicate conical threads traversing the light interstices between them. Their layer is easily distinguished from the stellate reticulum by the intermediate layer, which is composed of spindles and fibers. From their bases delicate short offshoots often emanate (Tomes' processes), which, however, do not exhibit any regular arrangement. Where the layer of ameloblasts is detached from the surface of the papilla, similar short processes emanate from the surface of the latter, and it is obvious that all these fine offshoots serve for an interconnection between the ameloblasts, and the medullary corpuscles of the papilla.

Still nearer the summit of the crown the ameloblasts once more lose their character, and once more break up into medullary corpuscles, more or less retaining their row-like arrangement. We observe that the medullary corpuscles, which lie nearest to the already formed dentine, are finely granular, whereas the rows some distance above are coarsely granular or homogeneous. These finely granular medullary corpuscles are at last infiltrated with lime-salts, and thus is produced the enamel proper. (Fig. 9.)

The first trace of enamel, as is well known, appears about the sixth month of intra-uterine life, at a period when a certain amount of dentine has already been formed. The outer surface of the dentine exhibits bay-like excavations, in which we often observe a flat layer of a finely granular protoplasm, analogous to that found in the teeth of adults. Above this layer we see prismatic pieces of calcified basis-substance irregularly distributed, since the enamel prisms, as a rule, do not reach the surface of the dentine, but are replaced by a homogeneous (Tomes' granular) layer. Yet above

this the enamel prisms are easily recognizable, and appear to be composed of more or less regular square pieces. In the latter instance we can see a deposition of lime-salts along the borders of the prisms, whereas their central portions often exhibit one large nucleus, or several coarse granules. The interstices between the rows of these square pieces frequently exhibit delicate fibrillæ, the enamel fibers, which are in connection with broader protoplasmic tracts,

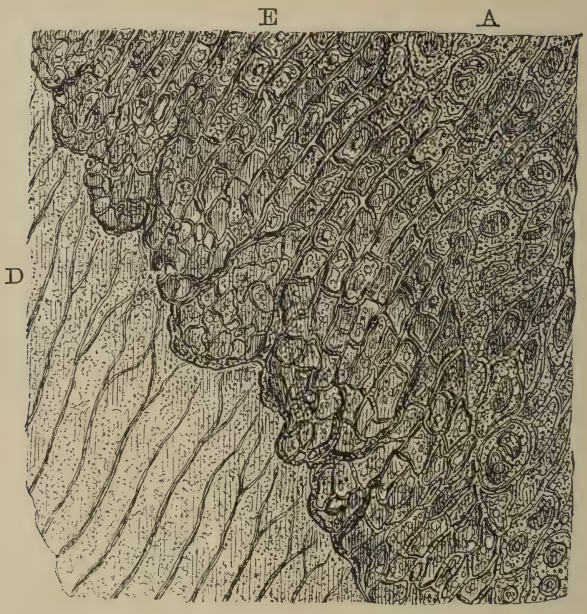


FIG. 9.—*First formed enamel of a human fœtus of six months.*

D. Dentine bounded toward the enamel by bay-like excavations.
E. Enamel composed of prismatic pieces.
A. Rows of medullary corpuscles sprung from previous ameloblasts.
Magnified 1000 Diam.

lying in the boundary between the enamel and dentine. These enamel fibers send branches through the transverse interstices of the square pieces. Everywhere delicate offshoots are seen, indicating that the living matter of the previous medullary corpuscles is preserved, even after their infiltration with lime-salts.

In the eighth and ninth months of fœtal life, both the enamel and the dentine form solid caps, corresponding to the summit of the crown of the tooth, and are super-imposed upon each other. In

decalcified specimens of these tissues, when they have been stained with carmine or chloride of gold, we observe a striking analogy in the structure of both the enamel and the dentine. With a magnifying power of 500 diameters, it is difficult to differentiate between dentine and enamel. The fibers in the canaliculi of the dentine closely resemble those of the interstices between the enamel rods. Even the highest powers of the microscope exhibit a close resemblance of both tissues, more especially after the lime-salts have been completely removed by means of reagents.

The sum of the results of our researches concerning the development of the enamel in the human subject may be condensed as follows:

1. In the third month of intra-uterine life there begins to appear between the inner and outer epithelium the so-called stellate reticulum.

2. The stellate reticulum is a myxomatous arisen from a medullary tissue, into which portions of both the inner and the outer epithelium are transformed.

3. The myxomatous tissue is the enamel organ proper, and although arisen from epithelia, is a variety of connective tissue.

4. Both the nucleated reticulum and the basis-substance of the meshes are crowded with living matter, which, in turn, after being reduced to medullary tissue, is transformed into enamel.

5. The external epithelium, by multiplication of its elements, produces buds directed outward.

6. The buds of the external epithelium break up into medullary tissue, accompanied by free vascularization (formation of blood-vessels and blood corpuscles) of the adjacent fibrous connective tissue.

7. The connective tissue sprung from the external epithelium is probably the material from which the enamel originates after the exhaustion of the central myxomatous tissue.

8. About the fifth month of fœtal life, the inner epithelium breaks completely up into medullary corpuscles, which are characterized by their small size and a nearly homogeneous appearance.

9. By a rearrangement of these medullary corpuscles, slender columnar bodies arise, the so-called ameloblasts, which precede the formation of the enamel.

10. The ameloblasts are again broken up into rows of medullary corpuscles, which by direct calcification produce the enamel prisms, and thus the subdivision into smaller segments takes place.

Among the different animals of which we have examined the process of the formation of the enamel, we may mention the following :

Kittens at the time of birth show all stages of the formation of teeth, and especially the breaking up of the inner epithelium into

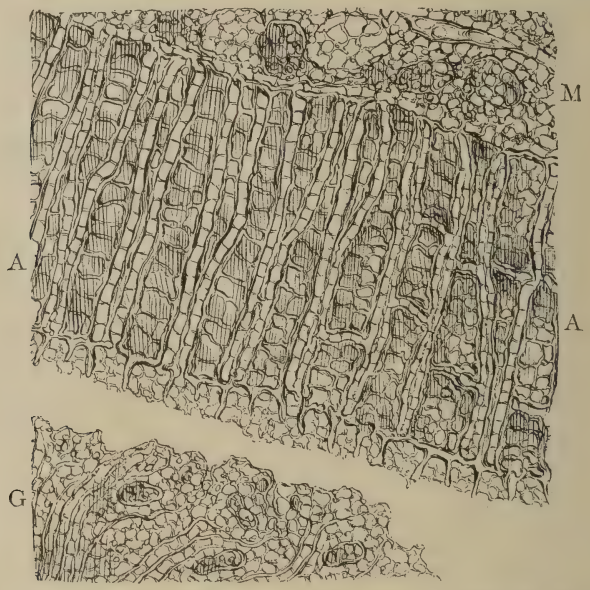


FIG. 10.—*Ameloblasts of a pig's fœtus about* 10 *centimeters long, before the formation of enamel.*

M. Myxomatous enamel organ.
A. Rows of ameloblasts of a markedly reticular structure.
G. Granular layer between the dentine and the ameloblasts.
Magnified 1,200 Diam.

medullary, and afterwards into myxomatous tissue, which is easily traceable. All the details, however, correspond to those of human beings.

In a newly born pup the formation of enamel was found, in all essential points, identical with that in man.

The fœtus of a pig forms an excellent object for the study of the formation of ameloblasts from medullary corpuscles. (Fig. 10.)

The ameloblasts are arranged with great regularity, being alter-

nately wedge-shaped in opposite directions. Their reticulum is very wide, and the horizontal threads traversing the interstices quite plain. From their bases arise a varying number of offshoots, directed toward a peculiar tissue which occupies the space between the ameloblasts and the already formed dentine. This tissue appears granular with low powers of the microscope. High powers, however, plainly reveal a reticular structure, traversed by delicate fibrillæ in connection with the reticulum. The presence of nuclei in this tissue indicates its origin from medullary corpuscles.

The fœtus of a lamb about ten centimeters long shows a large layer of ameloblasts. (Fig. 11.)

In places where the ameloblasts lie close to the dentine, no fibrillæ are seen, but where the layer of ameloblasts is detached, a large number of fibrillæ appear, evidently belonging to the dentine. This is less calcified and takes up a deep carmine stain, contrary to the fully calcified central portion of the dentine, which usually remains unstained. Here a layer

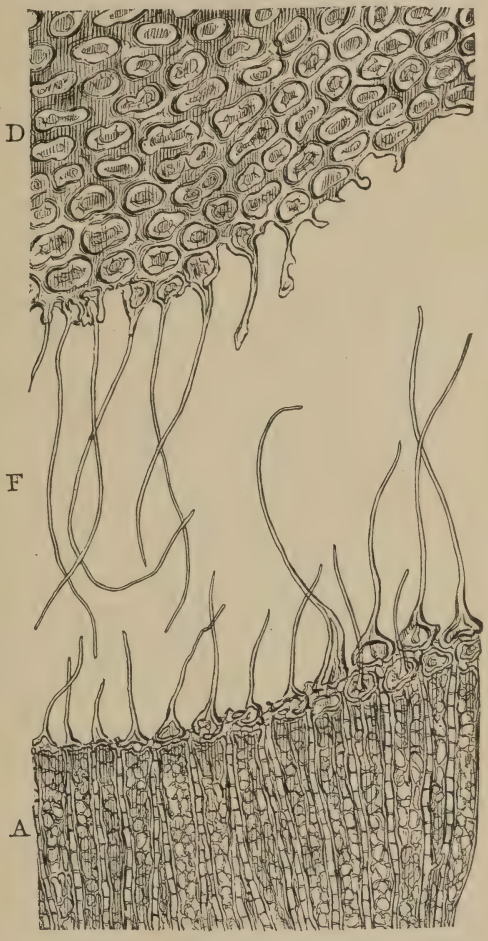


FIG. 11.—*Section of a tooth of a sheep's fœtus about 10 centimeters long.*

D. Dentine in transverse section.
F. Fibers drawn out from the non-calcified portion of the dentine.
A. Layer of ameloblasts partly in connection with the dentine.

Magnified 1,200 diam.

is wedged in between the dentine and the ameloblasts, which is peculiar to the sheep. The ameloblasts break up into medullary corpuscles before forming enamel, in the same manner as in human beings and other animals that we have examined.

(TO BE CONTINUED.)

ROBERT KOCH—HIS WORK AND METHODS.

BY GEO. W. LEWIS, JR., A. M., M. D., BUFFALO, N. Y.

Ten years ago Dr. Robert Koch was living in comparative obscurity in one of the small towns of Germany, engaged in a work the nature of which attracted the attention of only a few widely-separated scientists. It was at a time when little or no reliance was placed in the feebly supported germ-theory of disease, and the few outbursts of evidence which tended to establish its truth were so much at variance with each other and with popular prejudice that but little headway was made. In a modest way he gave utterance to the results of his experiments, but his opinions passed comparatively unheeded until he demonstrated the so-called tubercle bacillus before a poorly attended meeting of scientists which convened in the city of Berlin. This served to arouse public interest, both in the man and in the subject upon which he had thrown a new light. During the following year his views were confirmed by other prominent workers in the field of bacteriology, and the tubercle organism soon came to be regarded as a reliable factor in the diagnosis of this disease.

He had outgrown the little town that fostered his early discoveries, and now felt the need of greater facilities for research and intercourse with the scientific world. He therefore located in Berlin, and shortly after became identified with the Imperial German Board of Health. Asiatic cholera next attracted his attention, and he spent the three following years in different parts of India, where the disease is epidemic most of the time. Together with a corps of worthy assistants, he visited every locality that seemed to favor its spread, with a view of ascertaining, if possible, the origin of the infectious material. Although he found that cholera was rife most of the year in Ceylon, Madras and Bombay, he was able to trace its

transmission to these places to the active traffic between them and certain parts of the Delta of the Ganges. Further research satisfied him that this latter tract was the home of the disease, and his reasons for thus closely confining its habitat were based on the general character of the region.

The upper part of the Delta is densely inhabited, while the lower part or base of the triangle, which lies at a considerably lower level, is unapproachable to man on account of the inundations and the pernicious fevers which invariably attack any one who passes its borders. In this uninhabited part he found a luxuriant vegetation and an abundant variety of animal life. The products here exposed to putrefaction were nowhere more noticeable than on the boundary line between the inhabited and uninhabited parts, where the refuse from an extremely thickly populated country is floated down and mixes with the brackish water below, which flowing backwards and forwards is already saturated with putrefied matter. The entire stretch of country known as Lower Bengal is only slightly raised above the sea-level, and during the rainy season almost the whole extent is submerged. For this reason the inhabitants are compelled to build their huts upon raised ground. This is effected by taking the earth near where the hut is built, in order to raise the ground on which the house stands. The result of this displacement is to leave a large tank adjoining each hut, in which soiled water and putrefied matter from the household rapidly collect. Strange as it may seem, this very water is used for drinking and household purposes, and in turn receives much of the refuse which is necessarily thrown out.

Remaining in this locality several months, Dr. Koch was able to detect whatever slight fluctuations occurred, and was struck by the marked correspondence between these fluctuations and the prevalence of the disease in other parts of Europe. All European epidemics have been accompanied by a corresponding increase in the south of Bengal. During his stay, he performed over three hundred autopsies upon cholera corpses, and before leaving was successful in isolating from the discharges a micro-organism, which he called the Comma Bacillus of Asiatic Cholera. On returning to Berlin, he demonstrated the organism before the Imperial German Board of Health, and enlisted in his cause such men as Virchow, Gaffky, Grawitz, Pettinkoffer, Hueppe and other notable workers

in the new field. They immediately set about confirming his observations, and with some slight variations arrived at his conclusions.

In view of the danger threatening the whole world, and the German nation in particular, the government now took up the subject, and deeming Kochs' experiments the most reliable, accorded to him the distinction of acquainting representative physicians from every city and town in Germany with the practical part of his theory. A large laboratory was fitted up, and delegations of ten physicians succeeded each other in a ten days' course, under his immediate supervision. This plan was followed until every town had sent at least one representative.

It is the arrangement and working of this laboratory system which the writer has been called upon to describe.

The entire second story of the Board of Health building is devoted to the laboratory purposes, and for convenience has been divided into two large working rooms, besides several smaller apartments for individual research. A single room, perhaps twelve feet square, with double walls between which is kept flowing a constant stream of corrosive sublimate solution (1 to 1000), is called the *Cholera-Zimmer,* and in it is placed the little jar of cholera dejecta, which is replenished from time to time from cholera-infected localities. This room is closely watched, and except at stated intervals no one is allowed admission. Another room is fitted up with the apparatus adapted to bacteriological study, such as steam and hot-air sterilizers, and the various materials used in the preparation of the cultivating media. The laboratory is heated by steam, and an even temperature maintained day and night.

The course which the writer was privileged to take, began on the 15th of December and closed on the evening of the 24th. The daily session lasted from six in the morning until dusk. On entering, we were assigned to private rooms, and each given a suit of stiffly-starched linen clothes, which we continued to wear during the working sessions of the entire course. Leaving all else behind, we proceeded to the so-called cooking room, where we found the various ingredients necessary for the preparation of the cultivating media already weighed out for us. These we combined and sterilized, according to a set of rules peculiar to Koch's system, and with which I presume most of my readers are now more or less conver-

sant. It requires the better part of two days to make the nourishing substances, but these rather dry details over, the work is more interesting.

On the morning of the third day we made our first visit to the *Cholera-Zimmer*. In the centre of the room, on a plate of glass, stood the little tin box, about the size of a small pill box, containing the cholera discharges from which we were to make the inoculations. The glass plate was covered with filter-paper, and saturated with sublimate solution. After inoculating the tubes of food-gelatine, they were poured out in the liquid state upon sterilized glass plates, to allow the different species to colonize. By this means we were able to obtain a pure culture in about thirty-six hours. To impress the peculiar growth of this organism more strongly upon the mind, various other bacteria were cultivated at the same time, and the contrast between them made apparent by their manner of growth, rather than by their untrustworthy microscopic appearances.

In recalling the pleasant hours spent in this laboratory, it would be a gross oversight not to mention the midday lunch to which we were treated. From the time of entering in the morning until four or five o'clock in the afternoon, we were not allowed to leave the building. This, of course, necessitated some refreshment at midday, and in the good old German style it consisted of sandwiches and beer. The hours from ten to twelve each day were spent in the cholera room, and after passing through a thorough disinfection by means of extreme heat and cold, and a final washing in corrosive sublimate solution, we gathered about a long table, with Dr. Koch seated at the head. The conversation would naturally have to do with the morning's work, and to the writer the half hours thus spent proved by far the most interesting part of the course, taken up as they were with personal experiences, intermingled with rare bits of information pertaining to bacteriological study. The lunch over, the afternoons were given up to an examination of the cultures in their various stages of development, and the preparation of permanent microscopic slides.

The last three days were devoted to inoculation experiments upon rabbits, guinea-pigs, and white mice. As to the results of these experiments, I may say that they were successful only when the culture was introduced directly into the duodenum. When fed to the animals in appreciable quantities, no trustworthy symptoms

were induced, and at the autopsy it was invariably found that the microbes had perished during their passage through the stomach. This bears out Koch's theory of the fatal action of the gastric juices upon this organism. It also closely follows our knowledge of the disease, for some impairment of the digestive process has always seemed the most important factor in cholera infection.

In personal appearance Dr. Koch is slightly above medium height, of rather stout habit, with dark complexion and prominent features. His eyes are deep set, the result, no doubt, of prolonged study over the microscope. This condition, of course, gives additional prominence to the cheek bones. His manner is one of retirement, and not at all calculated at first to inspire a feeling of ease on the part of those with whom he comes in contact. Later, however, this feeling gives place to a gradual and ever-increasing attachment. He is a man whose convictions are well defined and adhered to with almost obstinate tenacity. He possesses the two qualities essential to a successful mycologist—patience and perseverance. Combined with these is a rare trait, the ability to define one's position clearly, to which no doubt a large share of his present success is due.

AN OVARIAN CYST

BY DR. W. C. BARRETT.

The remarkable specimen, of which an illustration is given opposite, was exhibited to a few dentists at the last meeting of the American Dental Association, at Niagara, by Dr. C. B. Hewitt, of Kansas City. It was placed in my hands for illustration, with the expectation that the surgeon who removed it would prepare a full statement of its history to accompany the cut. This he has failed to do, and the cut is therefore given with as much of the history as I have been able to procure.

The specimen consists of a considerable amount of hair, some of which is nearly a foot in length, what resembles a partially developed superior maxillary bone, and twelve teeth. The posterior portion of the mass from which the hair depends bears some resemblance to an occipital bone. The mass is represented in the cut a little less than its actual size.

The teeth appear to belong to differing periods of development. There are three very well developed molars, four bicuspids and some incisors, a part of them in appearance being temporary and a part belonging to the second dentition, set in no regular order but inextricably jumbled together. Some of the incisors have the serrated appearance which is often presented by the permanent teeth when they are first erupted. The roots of some of the teeth are fairly well developed, while others are more rudimentary, but the cusps of the crowns are perfect and of good size. The hair is of an auburn color, and appears like that usually found on the head of an adult. It is clearly not like that of a young infant. The hair and some of the teeth would seem to belong to a person of at least twelve years of age.

The woman from whom this specimen was removed was about twenty-seven years old. She had miscarried in her first pregnancy, when her term had something more than half expired. In less than a year she conceived again, as she supposed, the usual signs being present. But at the end of four months the enlargement and development of the supposed fœtus ceased, and everything remained in about the same condition for three years and a half, when enlargement again commenced. There was considerable pain in the ovarian region, and the patient became much emaciated. An ovarian cyst was diagnosed and an operation made for its removal. A cyst was found, containing a milky substance instead of the usual albuminous fluid, and this specimen.

The question immediately arises, what was the source of this growth? Was it a case of ovarian fœtation, or had it another origin? If it were the former, how could the teeth have been developed, even though progression had been active during the four years between the supposed term of conception and that of its removal? Would it be possible for permanent teeth to develop in that time? Could the hair have grown to the extent that it did during that period? All of the tissues in the specimen would appear to be of a greater age than the history of the supposed pregnancy would permit. Nor is there, so far as the history of the case goes, any positive evidence of pregnancy at all, although the usual symptoms were present for a short time.

These questions were submitted to Roswell Park, A. M., M. D., of Buffalo, professor of surgery in the medical department

of the University of Buffalo, editor of *The Medical Press,* etc., and his opinion asked. He has kindly furnished THE INDEPENDENT PRACTITIONER with the following :

"The above described tumor plainly belongs to the class of dermoid cysts, which are notoriously frequent about the ovary and testicle, though they may be found in almost any location, one having been demonstrated in the brain. It is one of the peculiarities of these growths that they most often contain fat, hair, teeth and skin, all of which are products of the external blastodermic layer of the embryo, and even bone, which comes from the middle layer. For many years these tumors were held to be products of a conception which had failed to reach the fallopian tubes, but in view of later researches this view is no longer tenable. Such cysts are always congenital in origin, though they may be late in development. In the case in question, the growth of the tumor was probably excited by the physiological activity accompanying the first pregnancy; it advanced slowly, provoked such symptoms as to lead to a suspicion of a second pregnancy, halted in its course for a number of months, as any tumor may, and then resumed active growth. The milky fluid which it contained, would doubtless have been found, upon analysis, to contain cholesterine in abundance.

"With regard to their more exact method of origin we must agree, with Heschel and His, that they arise from isolated portions of the epiblast or mesoblast (external and middle blastodermic layers), or both, which during the development of the embryo have been displaced and located somewhere where they do not properly belong. Such islands of tissue retain nearly all their embryonal possibilities, and, given an impetus, such as pregnancy in the above case, may in the early or adult life of the individual begin to develop into any or all of the tissues which they might normally produce. It was especially His, who showed that in the part of the embryo from which the internal genital organs are developed, the three germinal layers are exceedingly complicated and combined, and the comparative frequency of dermoid tumors in this location is thus made clearer. This corresponds also with the inclusion theory of Cohnheim. A dermoid cyst is always a monocyst, though it may occur with others.

"The peculiar interest in this case, to most of the readers of THE INDEPENDENT PRACTITIONER, will lie in the peculiar arrangement

of the teeth, those resembling deciduous and permanent being promiscuously mixed. We may hold, I think, that a dental germ under abnormal conditions may develop, according to its surroundings, in various abnormal ways. Assuming that a permanent tooth must have, say fifteen years for proper growth, we have here a patient of twenty-seven, with a tumor which *must* have had its beginnings in her own fœtal life. Assuming further, that it made no progress till she had attained the age of puberty, which is by no means assuming too much, but is most probable, we yet have sufficient time for the full growth of a permanent tooth. And this, too, on the assumption that because such a tooth *usually* requires so much time it *inevitably* does, which is by no means proven. Probably the deciduous teeth noticed in the specimen were of later growth; nevertheless, we must not expect obedience to the ordinary laws in such apparently lawless growths, where all development notoriously goes on with seeming inconsistency.

"While in reality we yet know very little about dermoid cysts, we are sufficiently familiar with them to assign the above case and specimen its proper place, which, I take it, is an advance made rather recently."

HOSPITAL OF ORAL SURGERY, PHILADELPHIA.

CLINIC OF PROFESSOR GARRETSON.

Reported by Robert S. Ivy, D. D. S.

An operation involving removal of the greater portion of the left superior maxilla was recently performed at the above clinic. The patient, a young man sent by his physician from New York, presented an enlargement of the bone, of a malignant character, over the antrum and alveolar process, but the extent to which the growth had involved the surrounding bones could not be ascertained. The patient having been etherized to a point ensuring insensibility during the first stages of operating and to permit more complete examination, a cut was made in the median line of the upper lip dividing the coronary artery, which was ligated; the incision was continued around the wing of the nose and upward in a straight line towards the inner part of the orbit, thence outward to the side of the face,

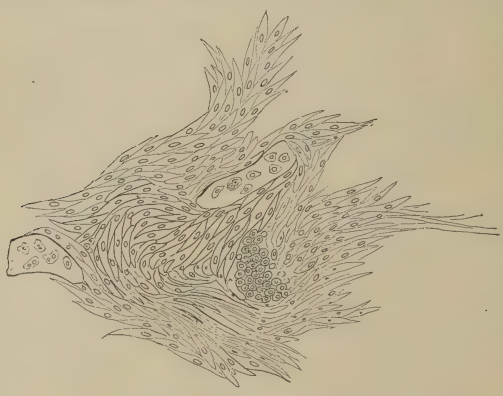
terminating above the maxilla-malar articulation. In dissecting away the flap relieved by this incision, the facial and infra-orbital arteries were cut. The external part of the diseased bone having been thus exposed and an opening made into the antrum, more complete examination was made by the professor and his *confrère* and assistant, Dr. Cryer, resulting in the discovery that the whole of the bone, except the orbital plate and small portions of the malar and nasal processes, was diseased and reduced to a semi-osseous condition. With bone forceps and the surgical engine all the parts involved were cut away, exposing the back part of the antrum and the nasal and oral cavities; a lobe of the parotid gland (*socia parotidis*) could also be seen. The hemorrhage having been checked, all rough and ragged surfaces of bone, resulting from the use of the forceps, were smoothed with a large bur.

The diseased portions of bone being thus eradicated, a sponge, washed in phenol and with a string attached to enable its subsequent removal, was placed in the wound. The incised surfaces of the lip were next approximated and held together by pins and a figure-of-eight ligature, a small compress placed on either side of the incision brought in contact the inner parts of the cut surfaces, and strips of adhesive plaster were applied as means of support to the parts. The operation was completed by bringing together the remaining part of the wound, by means of interrupted sutures. The recovery of the patient was so rapid that he was shown to the class two weeks after the operation, without any visible scar in the centre line of the face, union by first intention being absolutely perfect. Referring to the old-fashioned manner of removing the superior maxilla, Professor Garretson described it as simply terrific when compared with that employed in this operation, requiring the disarticulation of the bone at all points, with the bone forceps. Modern surgery enucleated only the portion of the bone diseased, a feature specially fortunate in this case, as the orbital plate being free from disease it was left undisturbed and the retention of the patient's eyesight kept beyond question. The surgical engine with properly adapted burs, used in cases of this character, resolves apparently complicated operations into absolute simplicity.

A section of the growth was subsequently made by Dr. C. W. de Lannoy, in the pathological laboratory of the college, who says: "The examination made of the maxillary tumor will warrant its

classification among the so-called myeloid sarcomata described by Corneil, Ranvier, Paget, Robin, and others. These neoplasms vary in consistence with the age of the growth. The cells are almost in absolute contact, with but a slight amount of intermediate cellular substance. The individual cells may present any or several of the forms peculiar to the sarcomata or connective tissue new formations, viz.: round, small, or large, fusiform, polygonal, and branched elements. In places the embryonic tissue may proceed to the formation of adult connective tissue, fibrous in character, and even the more complex tissue derivatives, cartilage and bone, may be found to exist.

The specimen under consideration represents the early stage of the neoplasm, that in which the inordinate production of embryonic cells has entirely replaced the osseous tissue of the maxilla, and while the general outline and dimensions of the bone are but little changed, the entire premaxilla and the maxilla anterior to the first molar are wholly destitute of any trace of bony structure. Posterior to this region, however, is seen an area more recently invaded by the neoplasm, and consequently remnants of as yet unabsorbed bony tissue are noticed.



Section of sarcomatous growth.

The spindle-shaped or fusiform cells are the most prevalent in this specimen, hence are referred to as *spindle-celled sarcoma.* Here and there, as seen in the illustration, are sections of narrow cartilaginous trabeculæ; these evince further differentiations of connective tissue, which, in time, would have become ossified.

The growth is malignant in the sense that the pathological changes alluded to usually involve, by a process of progression through continuity, the entire bone in which they first develop, stopping only at the deep layer of calcified cartilage corresponding to the articulation."

A PAIN OBTUNDER.

BY F. H. BRIMMER, D. D. S., MINNEAPOLIS.

That rapid revolutions of the dental engine bur will act as a pain obtunder is not a new idea. That the principle has not been made to produce beneficial results is, I think, owing to the fact of the extent only to which the rule has been carried. Revolving the bur or drill rapidly, and *going ahead at the same time,* will not produce the desired result. I will cite one case in practice which will illustrate the manner in which rapid revolutions do actually lessen pain:

A lady desired to have the left superior central extracted ; the tooth was turned partly around in the socket, and so protruded as to present an unsightly appearance, though it was perfectly sound. As the tooth at the gum line was nearly round, it was easy to fit a Bonwill crown, and I advised her to have it cut off for that purpose. To cut off a tooth with a live pulp seemed indeed heroic practice, but after explaining how it could be done with little pain she submitted to the operation, and I proceeded as follows:

A large spear-shaped drill was held in light contact with the centre of the tooth at the gum line, and revolved rapidly for fifteen or twenty seconds, the contact being only sufficient to transmit vibrations. The drill was then pressed against the tooth with a little more force, and the sensibility being found diminished, it was allowed to penetrate perhaps one-third the distance to the pulp, when it was again used as at first. At the third trial the drill entered the pulp. With a probe, carbolic acid crystals were gradually forced to the end of the root, and in twenty-three minutes the tooth was cut off and properly shaped for the crown, which was set on the following day. The whole was accomplished almost without pain.

This need not be thought an exaggeration, for I think it can be satisfactorily explained. There is a limit to nerve conductibility. If a nerve be continuously irritated, after a time it loses its power of transmission until time has been given for it to recover its normal condition. The continual jarring of the drill exhausts the irritability of the nerve, and it no longer conveys sensation until it has had time to recover its tone. I hope that those who may read this article will experiment carefully, even though they may have

no faith in this theory of a vibratory obtundent. I have been using in every-day practice rapid revolutions in the manner described for excavating sensitive teeth, such as usually are supposed to demand preparatory treatment to make the excavation bearable, and the result has been very satisfactory in every instance. I feel assured that there is something besides enthusiasm and imagination in this method of treating sensitive teeth for excavating, and for other operations which usually involve pain, and I am confident that the operator who employs it will find a real obtunder.

Reports of Society Meetings.

ILLINOIS STATE DENTAL SOCIETY.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY E. E. CADY, D. D. S.

The twenty-second annual meeting of the Illinois State Dental Society was held in the hall of the Y. M. C. Association, in Jacksonville, May 10-13. The society numbers 129 members, a large majority of whom were present, with many dentists from abroad. The meeting was a most pleasant and profitable one, both from a professional and social stand-point. The papers were interesting and the discussions enthusiastic. Dr. G. V. Black was present with his apparatus for the culture of microbes, and with a large number of tubes and slides containing, in different stages of development, microscopical fungi of many varieties. His lectures were one of the most important features of the meeting. Invitations from the Superintendents of the different State institutions located in Jacksonville were accepted, and at different times the Deaf and Dumb, Blind and Insane Asylums were visited by the society in a body.

TUESDAY, MAY 10th—MORNING SESSION.

After reports of the various officers and committees, the President, Dr. W. T. Magill, of Rock Island, delivered the annual address. The past year, he said, had been one of great advancement in dentistry, particularly in the west. Two new dental journals had made their salutatories from that section, and in our own State four new local or district societies had been formed. Mention

was made of the Younger operation of implantation, of the Knapp blow-pipe, and of Dr. Herbst's visit to this country, and the expositions of his method of operating. Attention was called to the deplorable ignorance of dental subjects, and particularly dental hygiene, among people well educated in nearly everything else, and the necessity for proper teaching in the public schools urged as a remedy. Occasional lectures by incompetent teachers were not sufficient, but approved text books should be used, and the subject, as far as necessary for this purpose, taught thoroughly.

AFTERNOON SESSION.

A vote of thanks was given to the committee who had so thoroughly performed the work of arranging district societies in accordance with the resolution of last year. It was reported that, in addition to the societies already organized in this State (the Illinois State Society, Central Illinois Society, Chicago Dental Society, Chicago Odontological Society and Chicago Dental Club), four new ones had been formed, viz.: Southern, Northern, Western and Eastern District Societies, with an aggregate membership of 125.

Dr. Black then spoke as follows:

It is difficult for most men to fathom the depths of the subject of micro-organisms and their work. This is owing somewhat to early training, and to the fact that the general trend of thought has long been in a different direction. Experimentation in this line is confined to a few persons, and upon them we are compelled to rely for our information. Notwithstanding the many disadvantages, this subject is progressing rapidly, and our knowledge each day is increasing.

A misconception exists in the minds of those who say a thing "spoils." A piece of meat laid in the sun is said to spoil. This is not true. Beef broth exposed to a favorable temperature will, it is said, spoil. I say it will not. I might thus go on with a whole category of things which are said to spoil, but which in reality do not. *They are spoiled.* If let alone they will last till the end of time. Chemical changes are never inaugurated within the beef or the broth except through external or outside interference. There are various forces active in matter, but the great disturbing force is life; what life is we have not determined. It is different from all other forces, in that it brings the elements together for its purpose.

A dog, capable of going about, gathers that material which is best suited for its own particular use, and just so do all other forms of animal and plant life choose sustenance. The dog dies, but the carcass remains forever if let alone—if no other life interferes with it. This is the essential point: You say this broth spoils. No! It *is* spoiled; wherever we find a chemical change, there a living being has had its growth.

Food taken into the stomach is converted into other chemical forms by digestion. Thus we have assimilation or tissue building, de-nutrition or formation of waste products, and reproduction. These processes, these changes are found in every form of life, from the greatest to the smallest, in vegetables as well as animals. They occur in the plants in this broth, and in the case of the dog, this is the process by which his body is destroyed.

The apparatus for the culture of microbes was then shown, and five inoculations in sterilized broth were made from the mouths of members, two being from beneath artificial plates, one of which was rubber and the other gold.

The paper of Dr. N. J. Roberts, of Waukegan, Ill., was then read, his subject being "Regulating Appliances," and several models were shown illustrating his method. The speaker prefaced his remarks by saying that the forceps, judiciously applied, and at the proper time, is the best regulator we have in four cases out of five, and that the removal of the first permanent molars just prior to the eruption of the second bicuspids, will prevent irregularities in one-half of the cases where there seems to be a predisposition to malformation. Consequently, the forceps is the first regulating appliance to be used, and other methods when that fails.

Nature does her best to bring the teeth into line, and fails only from lack of space, or other obstructions. The teeth are developed independently of the maxillary bone, and the principal cause of their deformities is the intermingling of races. Children often inherit the large bones of one parent, with the small teeth of the other, and *vice versa*. This being understood, it will readily be seen that much regulating can be done by extraction.

Dentists usually consider regulating cases undesirable, and when they are compelled to undertake them seek the simplest appliance possible. So much time is required in making and looking after an apparatus of the usual order, that one with an extensive prac-

tice can hardly afford to undertake these cases. Some of the leaders in this branch undoubtedly construct a set of screws and bands which do the work satisfactorily, but to the inexperienced their manufacture is so formidable that the great body of the profession will never adopt them. The popular demand is for something nearly automatic in its action, and easy of construction. The Coffin and Talbot springs are both good in their place, but cases where they can be employed advantageously are limited. In fact, this is true of all appliances now in general use, and where an extensive operation is to be made, a constant succession of plates, appliances and principles, is required to meet the new condition of things.

Experiment shows that a force of fifteen pounds can be obtained from the spring of black rubber, while the largest piano-wire bends at a strain of three and one-half pounds. This being the case, black rubber seems a desirable material, and I shall describe a regulating appliance made from it. A plate is made of thin black rubber with a thick shoulder opposite the teeth to be forced outward. Where it is desired to keep the jaws apart, a cap of the plate material should extend over one or two teeth on each side, and up the buccal surface, so that screws can be inserted to hold it firmly. Opposite the teeth to be forced out the plate should be cut with a saw, the length of cut and width of section to be determined by the amount of force desired. Screws should be set in the plates opposite the teeth to be drawn in or rotated, and to these ligatures attached.

If a screw is inserted in the section opposite the tooth, when it is turned it will tend to force the section onward, and the tooth will be driven out. A ligature attached to the tooth, and a screw placed in the palatine side of the plate, will draw the former in. Rotation can be accomplished in the same way, by banding the tooth to be turned and having on the band, at the proper place, an arm for attachment of a rubber ligature. Where enough spring force cannot be obtained from the plate, the Talbot wire spring may be used to good advantage. When the tooth is forced into the required position, a screw may be so placed as to hold it there.

The backward or forward motion may be obtained by making a short arm on the plate, and using a spring or elastic band. An appliance of this nature is always held firmly by turning up the screws in the caps before referred to. The How crown screws, with their ends squared to fit a watch key, are admirable for this

purpose. Use a jeweler's adjustable key, and give one to the patient.

It is well to place a drop of cement on teeth carying ligatures, to prevent the latter from impinging on the gum. This may be done also in the case of superior cuspids to be forced out, the shape of the tooth sometimes acting as an inclined plane, not holding the screw securely.

The advantages claimed for this system are simplicity, cheapness and near approach to automatism. During the past two years the essayist had employed it in over thirty cases, with great satisfaction.

DISCUSSION.

Dr. E. S. Talbot—I do not believe in the statement made by the essayist, that four cases out of five of the irregularities presented to us can be remedied by the use of forceps. On the other hand, I am convinced that more irregularities are produced by injudicious extraction than by any other cause. Teeth should not be extracted early.

We must consider the maxillæ as composed of two distinct bodies—the jaw-bone proper and the alveolar process—and consequently the entire structure has two functions. The true bone is simply for the attachment of muscles, while the alveolus is solely for the purpose of retaining the crypts of the teeth while forming, and their retention when erupted. In adult life, the alveolar process changes three distinct times, and while the jaw-bone proper grows entirely independent of the teeth and alveolar process, the latter for its development depends entirely upon the two former. This the speaker illustrated upon the blackboard.

If first teeth are extracted the process contracts, and if the second do not make their appearance for some time they have not sufficient room to come into line with their neighbors, and are crowded to one side or the other. The temporary teeth being removed, the first permanent molar works forward into the space of the second temporary molar. I have found in such cases that the permanent tooth has moved one-eighth to three-fourths of an inch. Extracting, as a rule, is simply opening the door to irregularities, and I do not think it pardonable except in extreme cases. Extraction of the temporary molar often causes the holding up of the permanent cuspid, and prevents its falling into place. I believe the screw prin-

ciple, as adopted by Dr. Roberts in the models here shown, a good one.

Dr. Black—Premature extraction of temporary teeth, in many cases, gives rise to irregularities. If the anterior teeth are removed, those back move forward, and this occurs to such an extent that I have seen the wisdom teeth moved forward to the place of the bicuspid. It is erroneous to be governed in this matter by size of the teeth or arch, as the latter can be enlarged. We should be guided almost entirely by the features. If the face is flat, the arch should be enlarged and the teeth brought out. If the face is prominent and the features round, extraction may be admissible.

Dr. Kitchen—Related the case of a boy where irregularities were corrected by filling the molar teeth in such a manner as to keep the jaws apart.

Dr. Black—There is no necessity for keeping the jaws apart. I have recently moved out three superior incisors, where the occlusion was undesirable, without separating the jaws. My usual method is to fasten wires to the molar teeth by bands. To these wires I attached ligatures of rubber dam. I do not use the tubing, as it is much more clumsy than the dam, and will not wear so long, besides having less strength.

Dr. Newkirk—I use the rubber dam in preference to the tubing, and find it as Dr. Black has stated. I agree with Dr. Talbot in condemning the use of forceps, and think that more false or misleading precepts could not appear upon the pages of our report. It is true that one is often tempted to extract, for it frequently appears as if the removal of a single tooth would remedy the entire trouble. This is a mistaken idea. In so doing we rob Peter to pay Paul, and the former will in due time come in for his pay, with interest. Extraction, in these cases, is usually a mere temporary make-shift, which will work serious injury in after life. The future changes must always be taken into account before extracting either temporary or permanent teeth. It is a mistake to suppose that if we extract a temporary tooth the alveolar process will remain for its successor. That tissue is formed and exists for the express purpose of covering the teeth, and when the latter go the process soon follows.

Regarding the models here shown, while it is true that simple appliances are the best, Dr. Roberts has not apparently carried out

his own idea. He certainly attempts to do too much with one plate. Cases of the nature here shown require several. In this mouth the cuspids should be moved first, then a new plate made and the laterals moved. I should not want to have such a complicated appliance in my own mouth; moreover, it is too thick; there is too much of it, and the whole piece too rough and improperly finished. The bands used are too thick and heavy. Teeth close together would require separating before it could be adjusted.

Dr. Stevens—In the absence of Dr. Roberts, my interpretation of his essay is that he moves the permanent teeth (not the temporary) with forceps at one operation, instead of taking six or eight months for it. As for this apparatus being clumsy, I think Dr. Roberts merely intended to show us in one plate all the different methods he uses, and do not believe he makes a practical case with so much wire, etc.

Dr. Noyes—Said that in addition to the anterior movements of the posterior teeth referred to, the anterior teeth moved backward a little, and related a case in point. The value of Dr. Black's suggestion regarding the features could hardly be overestimated.

Dr. Stevens—Dr. Newkirk, did I correctly understand you to say the jaws contract?

Dr. Newkirk—No, sir. I said the alveolus.

Dr. Gardner—I believe extracting far better than enlarging the arch in some cases. I do not believe the arch contracts or recedes. Regulating may be done at any age—fifty or sixty years. In making regulating appliances I use silver or copper and soft solder, as it costs less and they are more easily made.

Dr. Sitherwood—I have had two cases of necrosed bone from undue retention of temporary teeth. While the general principle of non-extraction is correct, there are cases in which it is necessary. I do not have good success with plates, nor have I been successful with the appliances of Dr. Farrar. In one case much trouble was caused by the patient screwing the appliance up too tight. I never take a case of regulating unless I am confident that the patient will visit me when directed, and wear any appliance that I may think necessary to put in the mouth. The matter of ability and willingness to pay must also be taken into account.

Dr. Reid—In making these appliances, I have employed ordinary nickel, instead of gold or platinum. The metal may be rolled down

as thin as needed; the bands are easily made and may be soldered with soft solder.

Dr. McKellops—What is the objection to gold?

Dr. Reid—The nickel is more easily manufactured and soldered.

Dr. McKellops—It is easy to say what can be done, but the proper way to demonstrate the truth of such a matter is to bring in the material and do the work before the society. Should this be done, I feel confident of proving my ability to manipulate gold for these purposes as easily as anyone can use any other metal. I do not believe Dr. Roberts intended to convey the idea that he moved teeth with forceps. I believe in extracting when necessary, and also in the use of good practical judgment and common sense in the different cases that present.

Dr. Stevens—Then you do not believe in Dr. Younger's theory?

Dr. McKellops—I believe the use of forceps in regulating would break up the nerve connections, and should not be practiced. We do not do Dr. Coffin justice in this country. I saw fifteen hundred of his practical cases while in Europe, and his method is certainly admirable. I cannot understand why dentists will not use coin gold for all appliances in the mouth, in preference to any base metal. It cannot reasonably be on the ground of economy, for the difference in expense is slight, when you recollect that the gold when you are done with it is sold for nearly as much as it cost originally. I never, under any circumstances, use anything else. It is especially necessary with children, for whom most of this work is done, that the appliance be made as attractive as possible. I should consider copper very objectionable for this purpose. It would make the fingers smell badly, the mouth taste badly, and children would throw it away because it was disagreeable.

The subject was then passed.

Cairo was selected as the place for the next meeting.

The officers elected for the ensuing year were:

President—C. B. Rohland, Alton, Ill.

Vice-President—Chas. Henry, Jacksonville.

Secretary—Garrett Newkirk, Chicago.

Treasurer—T. W. Pritchett, Whitehall.

Librarian—W. B. Ames, Chicago.

Executive Committee—W. H. Taggart, P. J. Kester, J. Cormony.

(TO BE CONTINUED.)

THE DENTAL SOCIETY OF THE STATE OF NEW YORK.

REPORTED FOR THE INDEPENDENT PRACTITIONER.

This society held its nineteenth annual meeting in the Common Council Chamber at Albany, May 11th and 12th.

The greater part of the morning session of the first day was occupied with routine work. The President delivered his annual address, which was received with applause. The Secretary and Treasurer made their annual reports, showing the society to be in a prosperous condition, both as to membership and finances. The Board of Censors made a report through the Secretary, Dr. Frank French, stating that fourteen candidates had presented themselves for examination, of whom five had been found competent, and were recommended for the degree of Master of Dental Surgery (M.D.S.)

The reports were ordered to take the usual course, and it was voted that the recommendations be adopted as read.

Other reports followed, but there was nothing of special importance until those of the District Societies were read. The reports of the Fifth, Sixth, Seventh and Eighth contained resolutions advising the abolition of the degree of Master of Dental Surgery, and recommending that hereafter no degrees be conferred by the State Society. Upon motion of Dr. Line the resolutions were referred to the Board of Censors, to report during the meeting. The report of the Eighth District Society also contained a resolution protesting against the granting of the Whitney memorial prize to any but a permanent or delegate member. Referred to the Committee on By-Laws.

It was moved and carried that the resolution of the Seventh District Society in regard to changes in the code, when two sections seemed to conflict with each other, be referred to the Committee on Dental Law.

The President called attention to the fact that some visiting dentists were present, and extended to them the privilege of the floor.

Dr. E. Parmly Brown read the report of the Committee on Dental Practice. The report was received and filed, and discussed generally.

Dr. Wells asked Dr. Brown for information about the use of cocaine with arsenic.

Dr. E. P. Brown—I have been in the habit of making my own arsenical paste for years. I found that with the use of morphia no

uniform results were obtained; there would be cases of extreme pain after application. Then I used it in combination with cocaine; they mix very well, and I have not had the severe after-pains that I had with arsenic and morphia alone.

Dr. Wells—I am glad to hear this statement, because it shows the therapeutical effects of the agents. It seems to me Dr. Brown's experience shows clearly that cocaine, which is not as good as morphine in some instances, is better in others. I doubt that the arsenic neutralizes the effect of morphia.

Dr. Brockway—When I hear these objections made to morphine and cocaine, I think the trouble must be in the agents. I have for many years practiced the taking out of pulps after a simple application of arsenic and creosote, and the operation has been painless. I believe the nerve paste sold in the shops is simply arsenic mixed with creosote.

Dr. Dwinelle—I rise to endorse what has been said by Dr. Brockway. I have been in the habit of using a paste of arsenic, creosote and morphine, for the last forty years; I am a little bashful about saying how many more than forty. I have never failed to destroy the pulps without pain; I might almost say I never had a painful result. The trouble may be in the preparation used, but it has been my good fortune during that period to succeed in devitalizing nerves painlessly by that application. Arsenic, as we all know, is a poisonous caustic, and the other two ingredients modify the effect. Morphine is a sedative, and it qualifies the caustive properties of the arsenic. Creosote is also a sedative, and these in combination effect a result which is perfectly satisfactory.

Dr. Campbell—I would like to enquire what is the preparation of morphine that you use?

Dr. Dwinelle—The sulphate. I presume the acetate would be as effective.

Dr. Rhein—In the use of cocaine during pulp devitalization, a clear opening should be made to the pulp, and the finest needle of a hypodermic syringe inserted, and the cocaine forced through it. I have been successful in obtunding a pulp in a few moments. I have never had any failure in using cocaine when I have been able to introduce the point of a hypodermic syringe. I have for that purpose some points much finer than are usually made, with suitable curves to reach the places desired.

Dr. Tripp—Dr. Brown says that many preparations of cocaine are worthless; but there is a preparation which renders the excavation of sensitive teeth absolutely painless. It is the alkaloid dissolved in ether.

(TO BE CONTINUED).

CLINIC OF THE CHICAGO DENTAL CLUB.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY ARTHUR B. FREEMAN, M. D., D. D. S., SECRETARY.

At the March meeting of the club, it was voted that the afternoon of the day on which the regular monthly meeting is held (the fourth Monday of each month) be devoted to a clinic. In pursuance of this action the business committee arranged a clinic, which was held in the commodious office of Dr. Chas. Pruyn, No. 70 Dearborn Street, on Monday, April 25th, at 1 o'clock P. M.

Between forty and fifty members of the club and profession were in attendance. The following is a condensed report:

Dr. L. P. Haskell demonstrated the use of "cores" in securing dies of a difficult partial lower case, having a long, high ridge on the left side, with an undercut on both surfaces, so that it was wider at the crest than lower down. The method of making the core is simple, and in such cases of undercut it is indispensable in securing a perfect adaptation of the plate. Asbestos and plaster are mixed and run into the undercut on the plaster cast, trimmed, varnished, dried of moisture over the gas stove, and placed in position, when a mold in sand is secured, the cores readily dropping from the sand mold with the cast. They should now be replaced in the sand and the metal poured.

If the precaution of drying the core is not taken, the steam generated by the hot metal causes bubbling and imperfection of the die. The necessity of using asbestos in the cores, in preference to any other material, was demonstrated by the fact that the fiber had preserved it from breaking, the same cores having been twice used before in making a practical case, and were still in a condition for further use.

Dr. Eugene S. Talbot demonstrated, on plaster models, his method of reducing irregularities by the use of the piano-wire coil springs, and also his method of manufacturing them for individual

cases, which was by placing an excavator in a vise, and closely bending the piano-wire about it several times.

Dr. J. H. Woolley exhibited his new root dryer, which is composed of a steel handle so adjusted to a copper cone or bulb, that the two act as a chuck to hold *in situ* a copper needle. The bulb is heated over a spirit lamp, and acts as a reservoir, conducting the heat through the needle into the root canal. He demonstrated the use of the instrument in the roots of an inferior first molar, and proved it to be a convenient and efficient acquisition to the operating table.

Dr. J. G. Reid, in the canals previously prepared by Dr. Woolley, demonstrated his method of root filling, which is that used by so many operators, the gutta-percha method,

Dr. E. R. Mullett, of Clinton, Iowa, exhibited his recently perfected electric mallet, and demonstrated its use by filling with gold a labial cavity in a lower incissor, which was partially under the margin of the gum.

Dr. A. E. Matteson filled with gold a large cavity in a superior molar, in which a fissure extended from the crown over the buccal surface toward the soft tissues.

His mallet was a unique instrument, consisting of a heavy leaden head, with a hole in which the index finger of the right hand fitted. By rapid action of the extensor and flexor muscles he caused the blows to fall upon a plugger held by the other fingers of the same hand, as effectively if not quite as rapidly as those of the electric mallet. The filling was quickly and beautifully done, and demonstrated that entire command of a few good instruments and methods is better than a constant vacillation among many.

Dr. J. Austin Dunn exhibited his new syringe for injecting remedies in alveolar abscesses, pyorrhœal pockets, root canals, etc. It consists of a rubber bulb, connected with a curved adjustable needle or point. It is a very light and convenient instrument, capable of delicate manipulation and at the same time equal in force to the hypodermic syringe.

Dr. McIntosh, of the McIntosh Galvanic and Faradic Battery Co., made an interesting and instructive exhibit of electrical instruments and microscopes suited to dental work.

An improved plunge battery, manufactured by his company after the designs of Dr. Geo. W. Whitefield, a member of the club, excited considerable interest. The elements are zinc and carbon,

the latter stationary in the fluid, the former raised and lowered by the foot at will, giving perfect control of the current while leaving the hands free.

The McIntosh "Professional Microscope" was shown, with a device for illuminating the object by the electric light attached. The perfect definition secured appeared to surpass the best results obtainable from sunlight.

"The Doctor's Throat and Mouth Mirror," lighted by a small incandescent lamp, was pronounced exceedingly convenient. As an aid in examinations it will become almost indispensable. A new instrument that excited special interest, is designed for drying nerve cavities in the teeth preparatory to filling, and was also suggested by Dr. Whitefield. It is constructed on the principle of the galvano-cautery electrode, and is heated by the electric current. The heat is under perfect control, the instrument being introduced cold and heated *in situ* to any degree wanted, instantly. Cutting off the current allows it to cool almost as rapidly as it is heated.

Dr. McIntosh has recently perfected a new bracket, suggested by Dr. Whitefield, having a revolving arbor connected by a belt with his new electric motor, both of which were shown to the dentists present. The arbor extends from the wall about three feet, and has attached to the end a flexible arm and hand-piece, any of the arms or hand-pieces used on dental engines being readily adjustable.

Worthy of notice is the new Universal Dental Matrix, the invention of Dr. Jno. H. Reed, of Lancaster, Wis., which was exhibited. This matrix has at least one redeeming feature which most do not possess, namely, its trifling cost. The advantages claimed are perfect adaptability, simplicity, durability and economy.

In addition to the foregoing, slides showing the invagination of the epithelium in the early embryonic development of the teeth were shown through the two fine microscopes on exhibition. The Electric and the Shaw Dental Engines were also exhibited.

A dozen patients were present for examination and consultation, with cleft palates, irregularities of the teeth, and other deformities of a nature requiring great judgment to correct or replace with artificial substitutes.

At six o'clock those in attendance adjourned to the Tremont House, where they dined together, after which the club held its regular monthly meeting, and after the transaction of its business

the members discussed and criticised the implements exhibited and the operations performed.

After the discussion Dr. McIntosh briefly addressed the club on Electricity, and before closing his remarks invited the members to meet in special session, at some future date, at the exhibit rooms of his company, when he said he would be glad to show their more delicate electrical apparatus and give them a more detailed talk on the subject, as well as to show them some curious experiments.

When the club adjourned at ten o'clock the general verdict was that a very profitable afternoon had been spent together, and an enthusiasm prevailed which we hope to see continued.

NEW YORK ODONTOLOGICAL SOCIETY.

Reported for the Independent Practitioner.

This society convened on the evening of May 10th, at the New York Academy of Medicine.

Dr. E. A. Bogue—Cited a case of extensive abrasion of tooth-structure. The patient was present at the meeting, in accordance with a request of Dr. Bogue, and an opportunity was thus afforded for the members to examine the teeth. Gentlemen present were called upon to give some explanation of the case, or to state the cause of such an abraded condition.

Dr. B. Lord—Believed it due to severe brushing and the use of coarse, gritty dentifrices. He questioned the patient, who admitted having for a long time used tooth powder containing a large proportion of powdered pumice stone.

Dr. W. H. Atkinson—Stated that in regard to the abrasions of these particular teeth he knew nothing, but suspected the tissue at the abraded points to be less dense than in other parts, consequently more readily worn or wasted away. He did not think the brush guilty of causing the mischief. In his judgment, the best method of treating such cases is to cut the structure outside the line of abrasion or soft tissue, shape a good cavity and carefully fill with gold.

Dr. S. G. Perry—Said that he had a case similar to the one presented, in which the abrasion was so deep as nearly to expose the pulp of a lower cuspid on the left side of the mouth. As the brush was held in the right hand, and that side was the one most vigor-

ously brushed, he ascribed it to that cause. The patient used "Oriental tooth paste," and Dr. Perry, having observed other cases of abrasion in which this dentifrice had been used, concluded that this might also have had much to do in causing it.

Dr. W. D. Tennison—Spoke of a very able and lengthy paper on the subject, read by Prof. Darby, of Philadelphia. He listened very attentively to the essay, hoping to hear something as to the cause of such conditions, but the author himself admitted that he could not explain it. Dr. Tennison could think of no treatment better than that suggested by Dr. Atkinson.

Dr. E. H. Raymond—Had a case of extensive abrasion. He carefully prepared cavities and filled with gold, but after a time he observed the same condition reappearing beyond the margin of the filling. He considered it due to disintegration, or to some chemical action which he could not quite comprehend.

Dr. Bogue—Remarked that the patient present first consulted him at his office in Paris, stating at the time that he had before been informed that the condition of his teeth was due to acid influences which would ultimately completely encircle his teeth, and destroy them. Dr. Bogue declined to operate for the patient at that time, but the latter recently called at his New York office for further consultation.

Dr. Perry—Read a short but very interesting paper, in which he stated that of the many cases in which first permanent molars had been extracted the articulation had been deranged, but he did not consider this little change of so much importance as securing good sound teeth. He thinks that Dr. Davenport (who prepared the paper read at the last meeting) had been so interested in studying articulations that he overlooked the idea of saving by extraction. As regards filing or grinding spaces between teeth, Dr. Perry believes that the practice will condemn itself. He is a firm believer in contour fillings, and would by all means advise the restoration of decayed teeth to their original shape, as far as was practicable. Ten years ago he read a paper on this subject before the New York State Society, at Albany, and after re-reading a few pages of this he declared that the ideas he then entertained on the subject were strongly confirmed by the subsequent ten years of practice. At one period of his professional life he had cut teeth for the purpose of making permanent separations. It was a mistake which he has

since greatly regretted. He now works with nature, not against her, and restores teeth to their natural shape whenever this can be accomplished. Where teeth are permanently separated the food will crowd between them, and the gums, which might at first give warning, after a time become callous and allow food to remain and cause decay. If, however, the teeth are knuckled together, each receives support from the others, and thus the food is prevented from becoming forced between them, while there remains space between them near the gum through which fluids might pass and keep them cleansed. He believes "high-water mark" in filling teeth was reached by the late Dr. Varney, and his method has not been surpassed.

The society having previously requested members and friends to bring with them models of mouths from which first permanent molars had been extracted, with a view to compare results, quite a number of casts were presented, some from outside friends, with accompanying letters.

Dr. Taylor, of Hartford, Conn., sent plaster models representing a mouth from which four bicuspids had been removed. They were extracted by advice of the late Dr. J. M. Riggs. The patient had been suffering from severe facial pains, which, from their peculiar character and appearance of the gums, etc., Dr. Riggs diagnosed as exostosis. The teeth were sent with the casts, and their appearance gave evidence of the correctness of the doctor's diagnosis.

Dr. Codman, of Boston, in a letter to the society, states that the first permanent molars should never be extracted until the second molars are fully erupted and the processes are fully formed around them, and until they properly occlude with their fellows, so that as they move forward they will move horizontally and not tip forward.

Dr. L. S. Straw, of Newburgh, sent models of mouths from which the first permanent molars had been removed after the second molars were erupted, showing very fair results.

Dr. Clapp, of Boston, sent casts for inspection ; also a letter of explanation.

Dr. Brackett, of Newport, R. I., sent the model of a mouth from which the first permanent molars had been extracted, showing excellent results.

Dr. Bogue, in commenting on this case, pronounced it a very satisfactory one.

CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

Celebration of its Seventh Anniversary.

BY JAMES G. PALMER, D. D. S.

Early in the year 1880 a few gentlemen practicing dentistry in and near Newark, N. J., met to consider the advisability of forming a local society. Some years before such an organization had been organized. It was, however, "born but to die." The meeting at which it came into existence, and a subsequent one, when it was wound up, are its only records. With this as a precedent, the gentlemen persevered, and on the 19th of May, 1880, the "Central" was duly incorporated by gentlemen from Newark, Elizabeth, Orange, Jersey City and New Brunswick.

At the time of its organization, the State Dental Society was in a flourishing condition. The location of the State, between New York City on the one hand and Philadelphia on the other, the advantages derived from association with professional brethren of these cities, and the feeling of pique at the frequent taunt of being "from Jersey," from whence no good was likely to come, combined to produce in the minds of the incorporators of the "C. D. A." a determination to succeed—to show other societies that New Jersey could do as well as any. They labored hard, and the society grew apace. Seven years have passed, and to-day we embrace in our membership the leading members of our profession throughout the northern and middle portions of the State. So interwoven with the interests of the State Society have become the interests of the "C. D. A.," that it almost goes without saying that to be a member of one is to be a member of both. Indeed, all the members of the "C. D. A." are members of the State Society.

Thursday evening, May 19, 1887, was celebrated for the first time, in a public manner, the anniversary of the incorporation of our society. At 8.30 P. M. there gathered around the table, spread in the dining-room of the Park House, in Newark, a goodly number of the members of the C. D. A. and invited guests. Among the latter were Drs. Northrop, Kingsley, Rich, Weld, Walker, Day, Gage, Atkinson, Nash, Parr and others of New York; Bonwill, of Philadelphia; Knapp, of New Orleans, and many more.

After the feast physical, came the intellectual. President S. C. G. Watkins, as chairman and toastmaster, told a good story, welcomed the guests and announced the first toast, "Our Invited Guests," which was drunk standing.

"The New York State Dental Society" was then proposed, and Dr. N. W. Kingsley was called upon to respond. He commenced by saying: There *is* such an organization as the New York State Dental Society, and it is compossed principally of dentists. There are a few medical gentlemen who condescend to practice dentistry, and who are associated with us. We do not object; in fact, we like to have high-toned gentlemen with us. It inspires and encourages us, and makes us feel that we are in good society. At some future time, when we get through making money, we may choose to practice medicine ourselves.

The next toast announced was "The Odontological Society of Pennsylvania," and Dr. W. G. A. Bonwill was called upon and gave a brief sketch of that society. He regretted that it had not done as much in a social way as some of its younger sisters. It had not been its custom to invite men from other States to attend entertainments, but perhaps in time it would inaugurate something of that kind.

"The First District Dental Society of the State of New York" brought to his feet its President, Dr. W. W. Walker, who said that of all the societies with which he was connected that was the one with which he most delighted to work. He detailed some of the scientific work accomplished by its members, and said that he believed it had done as much as any other to place dentistry upon the high pinnacle on which it stands to-day.

"The Press" was fittingly represented by Mr. Howells, who read an appropriate poem.

The next toast was "The American dentist; the thinking man, the generous man. The greater the demands upon him the larger his generosity to his professional brethren." To this comprehensive toast Dr. Atkinson was called upon to respond. He was in a peculiarly happy humor and took a roseate view of affairs dental, as the following "Atkinsonian" from his speech will show:

"We need not go further to see that we are not a mere specialty in medicine, but the crowning excellence of all the modes of healing that have ever yet been pronounced among men, from the earli-

est solidal through the fluidal and the cellulal to the pragmatic pathology which was pronounced only on this planet after dentistry became a distinct calling, by reason of the neglect of naturalists, divines, lawyers, medical men and the common polity, and their ignoring the organs upon which we must spend our time, and in which all the principles of the organism are developed and portrayed, the interference with which modes of activity lays the foundation for the necessity for the calling known as dentistry."

"The New Jersey State Dental Society" was responded to by Dr. C. S. Stockton, who spoke of the fraternal feeling which was or should be engendered by society meetings, and paid a glowing tribute to the society which he was called upon to represent.

Dr. John B. Rich was called upon to speak of "Reminiscences of Dental Practice," and sketched the difference in the practice of fifty years ago and that of to-day.

"The Dinner Committee" was honored, and Dr. Levy in response said that he hoped that those who were invited and did not come, might never fully know what they had missed.

"The Central Dental Association" was the subject of the next toast, and Dr. C. A. Meeker spoke of the steps taken to organize and incorporate the society, which had grown to an importance which no one at that time anticipated.

At "Low Twelve" the company dispersed, having thoroughly enjoyed a very pleasant evening, and filled with the hope that the society might celebrate many such anniversaries.

Editorial.

THE A. D. A. MEETING.

It was the wish of many good members of the American Dental Association that a meeting should not be held this year. Others were fully persuaded that to suspend the meetings for a year would result in the weakening of the influence of the society upon dentists, and might be interpreted as an abdication of its claim to be the representative National Association, for it would be a confession of vacillation and lack of vigor. Besides, there was a serious doubt if the officers could, under the constitution, refuse or neglect to call the meeting. That this question might be decided before final action was taken, we determined to do two things: first, to

enter a protest, that it might not be claimed that there was no objection to passing the meeting of 1887; and second, to call the attention of the officers to the provisions of the constitution, that illegal action might not unwittingly be taken. A letter was therefore addressed to the secretary, signed by Prof. Abbott and the editor of this journal, in which the point was raised, which was really one of law, although it was called a point of order to bring it within the province of the president to decide. It should be distinctly understood that this action was not taken in a spirit of factious opposition, but that a gross error might not be committed, and the society thus placed in a very embarrassing position. The signers of the subjoined letter will be as ready to accept the decision of the proper authorities as will any others of the members.

George H. Cushing, Secretary of the American Dental Association:

We, the undersigned, desire to file with you for transmission to the president and officers of the Association, our protest against the abandonment of the regular annual meeting of the Association for this year, and to raise the following point or points of order, which we desire should be laid before the board, and which it will be necessary to overrule before such action can legally be taken.

POINT OF ORDER.

That under the constitution the Executive Committee has no power to declare that a meeting shall not be held. Article four provides as follows:

The regular meetings of the Association shall be held annually, and commence on the first Tuesday in August. The place of meeting shall be determined each year by vote of the Association.

An amendment to this article was adopted in 1882, as follows:

Sec. 2. The officers may, for extraordinary reasons, change the time and place of meetings upon the written consent of ten (10) of the fifteen (15) officers.

We submit that power to change the time and place of meeting was delegated to the officers for a specific reason, and that it in no sense conveys authority to abandon the meetings altogether. If this were the case, the officers would have it in their power to destroy the organization by refusing to call the regular annual meetings at any time.

In 1881 the time was changed to allow those who desired to attend the meeting of the International Medical Congress in London to be present at both. This was done without any authority, but it stood because of there being no objection raised. At the meeting so convened, the amendment now known as Sec. 2 of Art. IV of the constitution was offered to meet such emergencies, and

at the next regular meeting it was adopted. But we submit that this never contemplated the total abandonment of any meeting. The time of the meeting of 1881 was changed to *allow* members to attend both meetings, whereas it is now, in effect, proposed to intermit the meeting of the Association to *prevent* the attendance upon both.

The neglect and refusal of the officers to call the meeting of the Association could not be excused under Sec. 2 of Art. IV, because such action could not be considered a change of time within the meaning of the amendment. According to the constitution a meeting *must* be held during the year 1887. The officers have no discretion in the matter. The time cannot be changed to 1888, for the meeting so held would not, within the meaning of the constitution, be that of 1887, and could not be construed as a mere change of the time for holding such meeting. It would necessarily become the meeting of 1888.

The officers may change the time and place for holding any annual meeting, but they cannot legally or without gross neglect of a plainly prescribed duty refuse to call the regular annual meeting *for this year*. They must either allow the time and place fixed by the Association at Niagara last year to stand, or they must change either or both within the plain meaning of the constitution. They cannot utterly refuse to call the regular annual meeting for the year 1887. Respectfully submitted,

W. C. Barrett.
Frank Abbott.

This letter was placed in the hands of the President, who gave it the consideration which it demanded, and in due time announced his decision as follows :

Chicago, Ill., May 6th, 1887.

Dr. Geo. H. Cushing, Recording Secretary, American Dental Association :

Dear Sir—Your letter of April 30th, accompanied with a copy of a communication from Drs. W. C. Barrett and Frank Abbott, making a protest against a proposed action of the officers of the Association looking to the postponement of the regular annual meeting of the American Dental Association of the present year until 1888, and raising what they term a "point of order" as to the power of the officers under the constitution to do so, also your letter of more recent date with a statement of the vote upon the question submitted to the officers of the Association, is received.

As the question raised had not occurred to me before, and the existing circumstances are of more than ordinary importance, I have thought it best to take such time to consider the subject as

would enable me to reach a correct conclusion as to the power of the officers to change the time and place of the Association's annual meeting; hence the delay in my reply.

It should be noticed that the gentlemen do not question the power of the officers to change the time and place of meeting, provided the time is fixed within the year 1887.

The authority that the officers have (if such authority exists) to postpone the next annual meeting to 1888, is found in Section two (2) of Article four (4) of the constitution. So much of the article as in any way governs the question, and to which reference is made by the protestants, reads as follows:

"TIME OF MEETINGS.—The regular meetings of the Association shall be held annually, and commence on the first Tuesday in August. The place of meeting shall be determined each year by vote of the Association."

"Sec. 2.—The officers may, for extraordinary reasons, change the time and place of meeting upon the written consent of ten (10) of the fifteen (15) officers."

As Drs. Barrett and Abbott are not officers of the Association, and have no right to vote upon the question at issue, or upon an appeal from any decision made, I could not see clearly how they could raise a point of order.* The question, it seemed to me (for the time being at least), was a matter that rested entirely with the officers of the Association.

The point they raise is valuable, however, as it has suggested a more thoughtful consideration of the question as to whether the officers have the power to omit a regular annual meeting of the Association, for if the regular meeting for this year is postponed until 1888, the meeting of 1887 or that of 1888 would, of necessity, have to be omitted.

Upon a careful reading of the article referred to, I became satisfied that an honest construction of its meaning forbade the officers postponing the meeting until next year. But before giving this as my decision, I felt that I should take counsel with some one in whose opinion the Association could rest with assured confidence.

With this idea in view, I placed the constitution of the Association and the protests of Drs. Barrett and Abbott in the hands of Ex-United States Senator Lyman Trumbull, and asked him to give me his written opinion upon the entire subject, which will be found in the following copy of a letter received from him:

"CHICAGO, May 4th, 1887.

"*Dr. W. W. Alport, President American Dental Association, Argyle Building, City.*

"DEAR SIR—The authority of the officers of the American Dental Association to dispense with the annual meeting is one of power

*The final decision of the question must rest with the society, where every member in good standing is entitled to a vote.

under the constitution, and not a question of order as to the course of proceeding, which could only be raised by a member of the Association in one of its meetings.

"In my opinion a fair construction of Article 4 of the Association's constitution requires regular meetings of the Association to be held annually. While Section 2 of that Article authorizes the officers, for extraordinary reasons, to change the time and place of meeting upon the written consent of ten of the fifteen officers, I do not think it contemplated a repeal of the first section, which requires annual meetings to be held, but was intended rather to authorize a change of the time and place of holding the annual meeting. My conclusion is that the officers would not be authorized under the constitution to dispense altogether with the annual meeting.

"Yours truly,
"LYMAN TRUMBULL."

With the opinion of a gentleman of such large experience in, and accurate knowledge of, parliamentary proceedings, and acknowledged standing as an able constitutional lawyer, I must accept his interpretation, and decide that the officers of the Association have no power to omit an annual meeting, and therefore direct that the vote just taken be not recorded.

Very truly yours,
W. W. ALPORT,
President.

That the meeting must be held then, would seem to be a settled fact. The only question is as to the time and place, and upon this point the officers no doubt desire the opinion of members. It has been proposed that the meeting should be held in the neighborhood of Washington the week before the meeting of the Medical Congress. This is impracticable, because the Southern Dental Association meets that week, at Old Point Comfort, and it would be a marked discourtesy to that society to select the same time. If the A. D. A. held its meeting the week preceding that, it would imply the spending of three weeks in a hot climate at the most uncomfortable time of the year.

It seems to us that the proper and dignified course for the society is to hold its meeting at or about the usual date, and quite irrespective of any other meeting. This will allow for sufficient time between that and the meeting of the Congress for dentists to return home and prepare for the second great meeting. We are well aware that difficulties attend upon any solution of the problem,

but the usual course and time seems to us fraught with less danger than any other, and will reflect greater credit upon the society.

Concerning the place, there is room for diversity of opinion. That the meeting should be called at some other point than Asheville is, we think, conceded on all sides. It should be held at some central and convenient location, easy of access, and where there could be no suspicion of favoritism in its selection. Niagara has always been the compromise place whenever any controversy has arisen during the whole history of the Association, and the wisdom of the choice has never been questioned. It would now, we think, secure a better attendance than any other location, though there are other points which are quite unobjectionable.

As the A. D. A. must uphold the status of dentistry when the Congress shall have departed, let the meeting be held as usual, and the dignity of American dentistry be maintained by the regular course of its onward march, quite irrespective of everything else. Any other plan of procedure will not only be injurious to the A. D. A., but will prejudice the welfare of the Congress, whose success we all are anxious to secure.

In any case, whatever may be the decision of the Executive Committee, it is the duty of every member to accept that decision loyally and without question, and to do all that is possible to secure a meeting memorable for its results, if not for its numbers.

REST FOR DENTISTS.

There is an affection peculiar to dentists which has for some time been recognized in England under the name of "Dentist's Leg." The *London Lancet* has specially called attention to it, and published more than one article upon its etiology and treatment. The symptoms are a special tingling and sensation of numbness in the leg, or what is commonly called the "pins and needles" feeling. The nutrition of the limb is finally interfered with, and it is a constant source of irritation and annoyance. Primarily, the condition is caused by the undue strain of constantly standing upon the leg in an unnatural position, and by over use in driving the dental engine. There is an impediment to natural circulation in the constant and unrelieved strain upon the muscles, and this interferes with the nutrition of the tissues. The nervous exhaustion of this

continuously maintained, unnatural and strained position, is also a factor in the production of the disease.

Attention has not been called to this disorder in America as it has in England, but it is not unknown here, and many dentists have suffered to a greater or less extent without directly recognizing the source of their illness. American operators engaged in full practice not infrequently stand at the chair from eight to ten hours a day, almost continuously maintaining a constrained position, and with their mental faculties incessantly excited to the utmost. Is it any wonder that under these severe labors, as a rule, they physically fail at an early age? Their labor, too, is entirely within doors, and their habits are sedentary. When the day's toil is ended, they are too much exhausted to take the out-of-door exercise that is essential to health. Their days of rest are few, for it is too often the case that the holiday of others only brings to the dentist an increase of work, through the necessity of operating for those who can visit him at no other time. There is a large class whose time during the hours of light on every laboring day is wholly occupied, and the visits to the dentist of bookkeepers, bank clerks and many holding responsible positions, must perforce be made upon Sundays and holidays, thus depriving the dentist of needed rest and exercise.

What is he to do? He cannot wholly evade these demands upon his time, and he cannot keep his own physical system in condition without rest and exercise in the open air. It is a problem which is troubling many an anxious dentist who has, perhaps, like the writer of this, found that even a physical organization that has for many years been fully able to meet every unreasonable demand upon it, will at last find its limit and utter its protest through unaccustomed aches and pains, and even by a serious threatening of the entire stoppage of some of the most important functions of life. When this crisis arrives the operator finds it imperative that he should pull up and begin to favor himself. But where shall he commence?

One of the most exhaustive of his labors is that of standing upon one foot and running the dental engine with the other. He may employ an assistant to do this, but unless his experience differs from that of ours, he will constantly find himself back at the wheel, through the temporary absence of his assistant, the desire for special delicacy in a difficult case, or through his own nervous impatience,

and thus the bounds he had set for himself are constantly overstepped. Patients, too, do not like a third person around the chair when his or her services can be dispensed with. Yet entire relief from this modern wheel of Ixion must in some way be obtained.

The crying need among dental operators is for a motor which shall be sufficient for his needs. It has not yet been found. Electricity does not answer, for this usually implies the keeping in order of a powerful battery, and any one who has tried this knows what a provoking task it is. Water motors are in many cases impracticable, because offices are frequently on upper floors, where the pressure in such places as have a water supply is too often insufficient. A miniature steam engine requires too much watching, and is dangerous when neglected. Gas and hot-air engines have not proved practicable. There is a field here for the exercise of the ingenuity of some of our inventive geniuses. A full reward awaits the man who solves the problem.

For some time we have been using a water motor that fully answers our purpose. But we have a pressure which can be relied upon. It is not heavy—about fifteen pounds to the inch—but it is steady. Immediately beneath the floor of the operating room a small sized Tuerck motor is placed, with supply and waste water pipes, and in the former a valve, which is easily controlled by the foot. The driving cord of a suspension engine passes through the floor and around the pulley of the motor, instead of about the wheel connected with a foot-treadle. That is all there is to it—simply the substitution of the motor for the usual driving wheel. It is always ready, there is nothing to clean or keep in order, and the power is abundant. For those who have a constant water supply, it is all that need be wished. It can be set upon the floor beside the chair, and a hat will cover it, and there need be no leakage or dirt from it to soil the carpet. In summer it will also drive a fan or cooling apparatus. It uses but little water, and the cost of the apparatus is small. But it is useless without a steady water supply.

There is another thing which the operative dentist will find a great convenience and relief, and that is an operating stool. If he will acquire the habit of sitting at his work, it will relieve the constant strain upon the legs. Indeed, it is this which *The Lancet* recommends as the cure for what it denominates "Dentist's Leg."

The overstrained muscles must have rest, and this can only be secured by a sitting posture while at work. American dental chairs have reached such a pitch of perfection that it is comparatively easy for the operator to bring his patient to any position that he may desire. It is not necessary for him to take up a constrained position over the patient, for the chair can be so arranged as to present either side, and almost any aspect of a tooth to the dentist. It requires some practice, but the dentist who has once acquired the habit of posturing his patient properly and then sitting while operating, will never again attempt to stand for hours supported by but one set of muscles.

It is entirely within the limits of practicability for the operative dentist who has anything like an established *clientèle*, to control his time. His patients soon learn what are his office hours, and conform to them. If he takes one or two hours for his lunch, he will find that it will be but a little time before his office will be deserted at that time. If he establishes the rule of a whole or half holiday upon Saturday, it will soon be widely known, and his patients will be quite as well suited, unless in extraordinary cases. If all the operative dentists of a city could be prevailed upon to close their offices upon Saturday afternoons, and spend that half day in pursuit of health and pleasure, each and every one of them at the end of the year would find himself better for it, not only physically but financially. Why should not this become universal among dentists? Some of our leading societies could not be engaged in a better work than the attempt to bring this about.

A PRACTICAL SCHEME.

At the meeting of the Illinois State Dental Society for 1886, Dr. G. V. Black, of Jacksonville, at the invitation of the society, presented his apparatus for the study of microbes, and made cultures before the society, detailing his methods and the results of his observations. It was then remarked that it seemed a pity that one who exhibited such an enthusiastic love for experimental investigation, such an aptitude for scientific research, and who was so thoroughly qualified by previous training for such work, should not be able to devote his whole time to it. It was said that there were plenty who could earn money, but there were few who, like

Miller and Black, were fitted for profitable scientific research. Such men, if they were relieved of everything else, could do more for science than all the desultory efforts of those who were comparatively untrained could accomplish in double the time. It would be more profitable, both for the profession at large and for the individual members, to place the money which each was prepared to spend in research in one common fund, and at the disposal of experts who would give to others the benefits of their studies, than it would be to fritter it away in inconsecutive and too often unscientific experiments.

The remarks were well received, and have borne fruit in the appointment of a committee, consisting of Drs. T. W. Brophy, Edgar D. Swain, C. A. Kitchen, J. Frank Marriner, Geo. H. Cushing, A. W. Harlan and T. L. Gilmer, who are charged with the duty of raising a sum of money to be devoted to original scientific investigations, and to be expended under the direction of the committee. A considerable sum has already been received, and we believe it is the purpose of the committee to place it in the hands of Dr. Black, with the request that he expend it in such way as shall best further the interests of scientific dental practice. It is suggested that he visit Europe, where he will have advantages for research such as this country does not afford.

We have not learned whether Dr. Black will temporarily give up his practice for this purpose, but cannot conceive that he will decline an offer so honorable, and a work which must be so congenial to his tastes, and for which he is so well fitted. The proposition is not only a flattering one for Dr. Black, but it is greatly to the honor of the western dentists who are engaged in furthering it. Such a scheme must commend itself to every progressive dentist, and it cannot but be that there are many who will desire a part in its accomplishment. If any wish to assist in so honorable and practical a work, they have but to address Dr. Brophy at Chicago.

In the capital report of the meeting of the Illinois State Dental Society for 1887, the first part of which is published in this number, will be found an account of the work and observations of Dr. Black during the past year, as reported to that society from day to day during the sessions. We need not commend it to our readers, for like good wine it needs no bush, and will be sure to attract their attention.

THE BONWILL DENTAL ENGINE AND MALLET.

Dr. W. G. A. Bonwill has sold the patterns and the right to manufacture his dental engine and mechanical mallet to The S. S. White Dental Manufacturing Co., and they will henceforth have the sole control of them. In some respects his dental engine is superior to any that is manufactured, while his mechanical mallet is capable of producing as beautiful and perfect results as anything of the kind that is known to dentists. Dr. Bonwill is an ingenious man, and that his inventions have been meritorious is proved by their sale, which, during the past fifteen years, has, we are informed, amounted to over $60,000, and he now receives more than half as much more in their final disposal.

They are few avocations which afford greater scope to ingenious men than does dentisty. The results at which the practitioner aims may be accomplished by so many varying methods, and mechanical science is so large a factor in most dental operations, that inventive genius is constantly stimulated to its highest accomplishments. So many mechanical implements are also employed by the dentist, and the efficiency of his work is so largely dependent upon the perfection of his instruments, that ample room is afforded for constant improvement in this field.

The propriety of securing a monopoly of manufacture by patenting the various devices and improvements made, has long been a vexed question in dentisty, but we believe that few object to remunerating the frequently protracted studies and long course of experimentation necessary to perfect an invention, by paying a reasonable royalty upon any really meritorious and original device. It is the taking out of patents upon trivial modifications, too often the securing of them upon devices and methods as old as dentisty itself, against which practitioners protest. One feels outraged when a claim is made for royalty upon and damages for use of some device which he has employed for many years, but for the essential points of which some dental pirate has secured a patent in secrecy and by stealth. Such claims are scarcely worth contesting, for it is usually cheaper to pay the amount than to fee lawyers. The inventions of Dr. Bonwill do not belong to this class, and all will rejoice that he has received a fair reward for the time and labor spent in perfecting them.

Current News and Opinion.

THE WAITE TESTIMONIAL FUND.

Dr. W. C. Barrett:

Dear Sir—Please find enclosed receipt for £81 17s. 8d. on account of the Waite fund, a noble contribution from our American confrères.

I cannot find language to describe to you the high appreciation and warm sentiments that were expressed on all hands when the amount was announced at our meeting.

This truly spontaneous sympathy with us in so worthy a cause will do more to bind the profession together in a loving rivalry for good than anything that has gone before.

Thanking you sincerely for the hearty way in which the matter was taken up,

Believe me, dear sir, yours faithfully,

Thos. Murphy.
Hon. Treas.

Springfield, St. George's Road,
Bolton, May, 9, 1887.

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10 Oxford Street, Liverpool, May 3, 1887.

Dr. W. C. Barrett:

Dear Sir—Kindly permit me a brief space in your journal to record my heartfelt appreciation of the brotherly love displayed by my American friends. The warm-hearted hospitality and generous consideration of American brethren won my heart twenty-three years ago, when, a perfect stranger, I went to study at the Philadelphia Dental College. From that time to the present, one of the strongest desires of my life has been to cultivate and promote a sentiment of true brotherhood between England and America. The most gratifying aspect of your practical and liberal sympathy is the evidence it affords of a deep, earnest and growing recognition of the indissoluble ties which bind together these two mighty nations.

As a personal gift, I have no claim whatever to the very handsome contribution made by America toward the splendid testimonial presented by my English brethren. But as a declaration of international courtesy, as a tribute of professional good-will, and chiefly as an expression of fraternal affection and sympathy, I rejoice to accept and to acknowledge the offering, prompted by the purest and the holiest feelings of which our common nature is capable.

Whatever the shortcomings of our profession in other respects, it must at least be conceded that we have risen to the honor and delight of gracefully endeavoring to comfort and encourage one another in time of trial or difficulty. Professional spirit may extend and amplify this principle, but it cannot be excelled, and no other profession, so far as I am aware, has ever furnished a brighter example of true Christian emotion than that afforded by this prompt and hearty participation of brethren on both sides the Atlantic.

I am deeply sensible, dear Dr. Barrett, of my great weight of obligation for the vigorous manner in which you grasped the opportunity, and not less for the

considerate and delicate tenderness with which you evoked this unparalleled expression of brotherly kindness. I assure you, your English brethren are deeply moved by this exhibition of unity, fraternity and sympathy. You have set an example they will not be slow to follow. Such principles over-ride all barriers, survive all changes, and endure even to eternity. Though disabled, I am not disheartened, and I trust still to have some opportunity of bearing witness in behalf of that which may subserve the best interests of the profession we all love.

Believe me, dear sir, with every assurance of esteem and gratitude, to remain, Yours very truly,

W. H. Waite.

CONNECTICUT VALLEY DENTAL SOCIETY.

The Connecticut Valley Dental Society adopts quite an innovation this year by going to Montreal, Canada, to hold its semi-annual meeting, which opens at the Windsor Hotel, July 19th, and continues four days. The feast of good things offered to the profession will include papers from Prof. G. V. Black, Jacksonville, Ill., Prof. Chas. Mayr, of Springfield, and Prof. R. R. Andrews, of Cambridge, the latter's paper to be illustrated with the stereopticon.

The dentists of Montreal already evince much enthusiasm in regard to the meeting, and will do all in their power to make it a success. The programme will be so arranged as to combine business with pleasure, and opportunities will be given to visit the various points of interest in and about Montreal, including a sail down the wonderful Lachine Rapids, while excursions at reduced rates will be arranged to Quebec, Montmorency Falls, and to the Saguenay; also to Ottawa. Rates at the Windsor will be reduced to $3.00 and $3.50 per day to those attending the meeting. Round trip tickets from Springfield, good for two weeks, will be $12.00. Rates from other points cannot be announced until July 1st. A cordial invitation is extended the profession to attend, and *a special request is made that each one bring his wife with him*. If those who intend going will correspond with the secretary, they will save themselves much trouble in regard to securing rooms, etc.

Geo. A. Maxfield, D. D. S., Secretary,
Holyoke, Mass.

FIFTH DISTRICT DENTAL SOCIETY.

The nineteenth annual meeting of the Fifth District Dental Society of the State of New York was held at Utica, N. Y., April 12th and 13th, 1887. Three new members were received, and the following officers elected for the ensuing year :

President—C. H. Bennett, Waterville.
Vice-President—B. T. Mason, Phœnix.
Recording Secretary—C. J. Peters, Syracuse.
Correspondent—G. H. Butler, Skaneateles.
Treasurer—A. R. Cooke, Syracuse.
Librarian—A. Retter, Utica.

C. J. Peters, Sec'y Fifth D. D. S.

DENTAL JOURNALS WANTED.

The editor of this journal will pay cash for the following numbers of dental journals, or an exchange will be made with those who desire to complete their own files.

THE DENTAL REGISTER.

Vol. III, Nos. 1, 2, 3.
Vol. VI, Nos. 1, 2, 3, 4.

AMERICAN JOURNAL OF DENTAL SCIENCE.
(Third Series.)

Vol. VII, Nos. 7, 10.
Vol. VIII, Nos. 6, 7.

THE LONG PENDING SUIT between Drs. John Evans and Thomas W. Evans, the two famous dentists of Paris, relative to the bearing of the name of Evans by the former, has been definitely decided by the courts in favor of Dr. John Evans, and his adversary has been condemned to pay all the costs. Dr. John Evans had taken the name of D'Oyley for use in private life, so his uncle contested his right to continue to call himself Evans in his business relations. "Medical and dental journals please copy."—*Galignani's Messenger.*

Certainly, we will "copy!" But it would appear by this extract from the Paris paper that Dr. John is ashamed of his vocation, and in private life desires to be dissociated from the professionally famous name of Evans. Whatever may be the possible faults of Dr. T. W. Evans, it was never charged against him that he was guilty of any such act of poltroonery and snobbishness, and it seems a decided pity that his suit to restrain his unworthy relative from using the name for sordid purposes alone, has not been successful.

A FLUX that is exceedingly useful in bridge work is prepared as follows: Put in a cup—

Boracic Acid,	1 oz.
Ammonia,	½ oz.
Carbonate of Ammonia,	½ dwt.
Bicarbonate of Soda,	2 dwt.
Water,	4 oz.

Boil until the fumes of ammonia are no longer given off.

Coat the bridge or other work all over the gold with the flux. Heat it over a spirit lamp to dry it on. Give it another coat, if needed, leaving no part exposed. Then scrape off where it is desired that the solder shall flow, and it will go nowhere else. The work will come out of the heating as bright as when it went in, and the solder will be smooth. The polished surfaces will not be corroded or blackened. H. W. HOWE, D. D. S.

THE THIRD INSTALLMENT of the "Unpublished Letters of Thackeray," which will appear in *Scribner's Magazine* for June, will contain a four-page letter in fac-simile, with a pen-and-ink sketch of Jules Janin by Thackeray. A number of other Thackeray drawings will be reproduced from the rare collection privately printed for Sir Arthur Elton. The letters are said to be full of that humor, pathos, and kindly sentiment which have made Thackeray so lovable as writer and man.

Mr. Smale, of England, relates the case of a boy aged eight, who had the right upper central incisor twisted so that the mesial surface presented toward the lip. The tooth was grasped firmly by a pair of straight-bladed forceps and twisted into a good position, care being used to press the tooth firmly into the socket during the operation. It was tied to the surrounding teeth with silk twist, to prevent its returning to the old position. A week afterwards it was quite firm, the tooth could be tapped, and the boy could distinguish between hot and cold applications. There was no discoloration, and the gum was healthy. Torsion, says Mr. Smale, may be used freely before the patient arrives at the age of twelve years, and should always be done at one operation. It is only applicable to incisors.

In the case of Dr. Frederick B. Mandeville, of Newark, N. J , who, in compliance with a contract, applied for an injunction to restrain his former assistant, Dr. George W. Harmon, from practicing medicine in Newark, the Vice-Chancellor has refused to grant the injunction. The Vice-Chancellor says that the covenant by which Dr. Harmon bound himself not to open an office in Newark after quitting the service of Dr. Mandeville, was unreasonable and therefore void. Professional skill, experience and reputation, are things that cannot be bought or sold. They constitute part of the individuality of the particular person, and die with him.

That may be New Jersey law, but it is neither reason nor justice.—Editor.

Dr. L. W. Bristol, of Lockport, has read before the Seventh and Eighth District Dental Societies historical papers and recollections of his long professional life, which were published in the Independent Practitioner and have been very extensively quoted by our contemporaries. Whether by error or of malice aforethought, they have usually been credited to the journal which first cribbed them from us. It is a little matter, but it is becoming so common that it is time for us to enter a protest, and perhaps call upon some one for an explanation, for the habit of quoting from this journal and giving credit to another seems to be growing on our brother editors.

A decree has been officially advertised in Germany, in the *Deutsche Medizinal-Zeitung*, ordering all persons not possessed of an approved medical qualification to discontinue within three months the use of the name "American Dentist" on signs, cards, etc. The reason given is that it may produce the impression that the bearer is an approved practitioner of medicine, but there is no doubt that it is intended as a discrimination against American dentists, and is another exhibition of the dislike of the German government to Americans, and the jealousy of American dentists. Our dental degree is thrown out because of the irregularity too often connected with its bestowal.

"Sparkling and bright," better than champagne. The Underwood Spring water is highly charged with carbonic acid gas and is a most refreshing drink for warm weather, which the weary dentist will know how to appreciate when he has tested its qualities.

Pythagoras asserted that the seat or location of the soul is the encephalon; Eristratus, the meninges; Herophilus, the great ventricle; Servetus, the aqueduct of Sylvius; Arontius, the third ventricle; Des Cartes, the pineal gland; Sœmmering, the liquid contained in the encephalon; Aristotle, the heart; others the origin of the spinal cord, the corpus callosum, the corpore striata, etc. Empedocles believed that it circulated through the blood.

Dr. Herbst, instead of using a clamp for holding the rubber dam in position, cuts the point from a common pin, flattens it a little with a hammer, curves it to make it partially conform to the shape of a tooth, and inserts it next the tooth to be filled. The rubber dam is then hitched over it, and thus held until the ligatures can be adjusted. He thus reduces the discomfort to the minimum point.

Dr. James G. Palmer, formerly of New Brunswick, N. J., has removed to New York City, and may be found at No. 112 West 38th Street. Dr. Palmer has always been active in society and professional work, and his removal to the metropolis will give him a broader field. "'Tis not in mortals to command success," but Dr. Palmer will certainly deserve it.

Almost everyone can enjoy a good joke, even if it is at some one's else expense, and *The Western Dental Journal* makes an especially good point on *Archives of Dentistry*, apropos to the Fifty editors and Forty-three sub-editors or correspondents of the latter, when it intimates that *Archives* is publishing its subscription list upon the title page.

An Eclectic Medical College, managed by Dr. Samuel York, of Lewiston Me., has, it is charged, engaged in the selling of diplomas to students who had been engaged in study for less than a day. York's diplomas, besides many other things, covered "operative dentistry," but the students did not have the opportunity even to see a tooth extracted.

"The Arlington" has been selected as the headquarters of the Section of Dental and Oral Surgery in the International Medical Congress, which opens September 5th at Washington. The terms to delegates will be three and four dollars per day for each person, the price depending upon location. Rooms should be secured early.

It is estimated that in 1881 medical books formed one-thirtieth of the whole mass of the world's literature. The number of separate volumes was more than 120,000, and of pamphlets a quarter of a million. Since that time medical literature has increased at the rate of 1,500 volumes and 2,500 pamphlets annually.

Dr. D. G. Brinton has retired from the editorship of the *Medical and Surgical Reporter*. But such an accomplished and experienced writer cannot keep out of the editorial harness, and he gives notice that he will shortly establish a new medical journal. It would be a great professional loss should Dr. Brinton retire altogether.

Montreal has received the munificent gift of $1,000,000 from two wealthy men who have been knighted by the Queen, and who propose to endow a hospital to be called "The Royal Victoria Hospital." What a pity that the Queen cannot knight some of our wealthy men, if it would produce like results.

The postal law makes it larceny if a man takes a newspaper or periodical from the postoffice and then refuses to pay for it. It does not matter whether he shall have subscribed for it or not. If he receives and accepts it he must pay, or be liable to a criminal prosecution.

The Legislature of Alabama has passed a stringent dental law which has been approved by the Governor. The Arkansas Dental Association was organized in January last, and the first work it set itself about was to organize the profession through an appropriate law.

Dr Geo. H. Cushing, of Chicago, has removed from No. 34 Monroe Street to No. 96 State Street.

Dr. T. W. Brophy has removed from No. 125 State Street to the same number. Dr. W. W. Allport has removed to the Argyle Building.

Dr. James W. White, editor of *The Cosmos*, has been appointed by the Mayor of Philadelphia, President of the Board of Charities and Correction. That Dr. White will worthily fill the office, no one who knows him will doubt.

The New York Dental M'f'g Co., as may be seen by its advertisement, has been absorbed by the S. S. White Dental M'f'g Co., and will be known to dentists no more. The latter company "gathers them in" gradually, but surely.

The American Medical Association will hold its thirty-eighth annual meeting in Chicago, Ill., commencing Tuesday, June 7th. and continuing four days. Reduced rates for members have been secured on most of the railways.

The Missouri Dental Society meets at Kansas City, June 21st to 24th. The energetic President, Dr. Conrad, is moving all the Mississippi Valley to secure a successful meeting.

Dr. J. H. Martindale, of Minneapolis, Minn., sails early in June for Europe, for a tour of two or three months. His time will mostly be spent in France and Germany.

The German Zahnarztlisches Institute, Berlin, has proved a great success, the students of the last semestre numbering 139 matriculants.

The Ojczyzna is a semi-weekly paper published in Buffalo, of which we have received a copy marked "Please X." Declined, with thanks.

An excellent pickle for gold work may be prepared from the following formula: Oxalic acid, ½ oz.; sulphuric acid, 1 oz.; water, 6 oz.

Dr. T. B. Wheeler, formerly of Chicago, has gone to Europe to enter upon practice. He intends to locate in Paris.

Johns Hopkins University has an endowment of about $5,000,000. Last year it yielded a net income of $226,000.

A PHARMACEUTICAL SPECIALTY FOR DENTISTS.

LISTERINE.

FORMULA.—Listerine is the essential antiseptic constituent of Thyme, Eucalyptus, Baptisia, Gaultheria and Mentha Arvensis, in combination. Each fluid drachm also contains two grains of refined and purified Benzo-boracic Acid.

DOSE.—Internally: One teaspoonful three or more times a day (as indicated), either full strength or diluted with water, or in combination with other drugs. As a local application to ulcers, wounds and abscesses, or as a gargle, mouth-wash, inhalant or injection, it can be used ad libitum, diluted as necessary for varied conditions.

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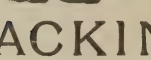

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FLAT TEETH for Metal Plate, and Crown and Bridge Work.
VULCANITE TEETH.
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Pinless, Dovetail and Open Crown for Vulcanite.

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   Ranging from very light to very dark shades, and closely resembling the various colours of the human teeth.

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   Non-porous, so that they can be *ground* and *polished* to suit particular cases, therefore being well adapted for Bridge work.

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   Possessing unusual strength on account of their fine and close texture.

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Some unprincipled dealers in the United States are selling imitations of our pinless teeth as our make. Dentists can easily detect the imitation, from the very rough finish and inferior coloring of these teeth.

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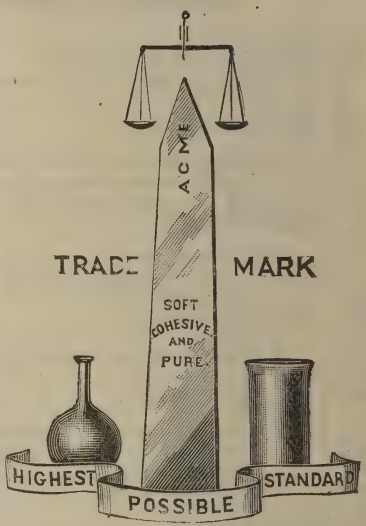

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Truly,

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Dear Sir,—Your agent left one book of your Corrugated Gold Foil for trial, and I would not be doing you justice without saying that it works equal to any Gold I have ever used. Please send agent with a further supply and oblige,

Yours, respectfully,

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One of the many testimonials we receive almost every hour in the day:

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Dear Sir,—Please send your man with Foil.

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Gold will be sent free of cost to any part of the United States or Canada. Remittances must accompany all orders.

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We desire to call your attention to the beautiful line of HARD WOOD HANDLES.

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After repeated demands for such Handles as here illustrated and described, and being so thoroughly satisfied of the numerous advantages as named to us, we have taken advantage of our first opportunity to produce them, and are now prepared to supply the full line.

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THIS COMPOUND STANDS WITHOUT A RIVAL.

From Seven to Ten Years' Test by Leading Dentists Throughout the World has Proved it to be All That Has Been Claimed for it.

Diamond Cement should not be classed with the so-called oxy-phosphates, as is often the case—the materials of which it is composed and its process of manufacture being entirely different—hence its SUPERIORITY.

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As Now Made, is Slower in Setting, giving ample time for the slowest operator to manipulate it properly.

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The use of cements is not sufficiently inculcated. We use it as a rule when patients are not able to pay for large gold fillings, as a matter of economy, but the fact is it saves teeth that gold would not save. I have a case in mind. Teeth which were decaying rapidly *FIVE YEARS AGO*, I filled with Caulk's Diamond Cement, and they are now in good condition.—Dr. E. S. Chisholm, in *Transactions* of the *Alabama Dental Association for* 1886.

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This GOLD AND PLATINA ALLOY is manufactured on a NEW PRINCIPLE.
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Price in ⅓, ½ and I ounce packages, per ounce, $3.00; 2 ounces, $5.00.

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There is NOTHING EQUAL or Superior to it.

Is of a peculiar grayish-white color. When amalgamated in the hand it works with a soft and velvety feeling. It is very DENSE, and so malleable that it can be malleted with the greatest ease. Has been highly recommended in Combination Fillings of Gold and Amalgam. When properly manipulated with our PURIFIED MERCURY it will retain its color under all circumstances.

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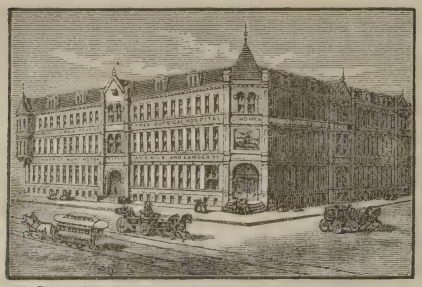

Its value was recognized by the profession from results obtained in the Free Hospitals that have been established and supported by our Mr. A. L. Murdock during the last four years. They now equal

140 FREE BEDS.

and contain 38,000 feet of floor.

Our Liquid Food can be retained by the weakest stomach. Four tablespoonfuls daily will make eight per cent. new blood weekly. When used for infants, never change their food, but add five or more drops of Liquid Food at each feeding, and their lost or needed vitality will be restored in less than thirty days.

Send for the Report of the Chairman of the Section of Obstetrics of the American Institute of Homœopathy, read at Saratoga at the annual meeting of 1886.

Circulars were sent by him to all the Physicians in the United States, asking what their experience was with Murdock's Liquid Food in its use for infants under, as well as over, one year old.

Then what results, with all the different Milk preparations, Grain Foods, Peptonoid Foods and Beef Extracts, compared with Murdock's Liquid Food.

The Returns show that it is the Standard Food and Extract, as the percentage of lives restored was the largest when used.

We extract from the report. After calling attention to the fact that one-quarter of the homœopathic profession are accustomed frequently to prescribe this food for children less than a year old, as well as over, he remarks—

"It is singularly adapted to scrofulous, syphilitic, and tubercular constitutions, its life-restoring power manifesting itself in each with a relative clearness and power corresponding to the order of enumeration. For fair-haired children who are inclined to grow fleshy it is more symptomatically recommended, while Duncan's *acid* babies find it particularly useful. Accordingly it is chiefly employed for marasmus and anæmic conditions resulting either from non-assimilation of food or from simple summer complaints. Should a child vomit all milk food and suffer synchronously with diarrhœa or dysentery, the demand for this food is emphatic and unmistakable; also in general irritability of the stomach, particularly if there be sour-smelling diarrhœa, the food passing through undigested. For the prematurely born it stands pre-eminent. For those 'weak and debilitated from any cause, Murdock's Food is probably the best in the world.' Should any indication of cerebral hyperæmia appear, the quantity of food must be diminished; so, too, if after its protracted use, vomiting and diarrhœa ensue, the child has been overfed. *Should the taste or odor of any given bottle chance to be disagreeable, add water until they disappear, and let the purchaser congratulate himself upon getting more nutriment than he paid for.* When given in combination with milk in cases of indigestion, the quantity of milk should be diminished until all curds disappear from the stool, the quantity of Food, of course, being proportionately increased."

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Our Free Surgical Hospital for Women, located on Huntington avenue, above West Chester park, contains fifty (50) beds, in charge of a staff of five surgeons, members of the Massachusetts Medical Society.

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From the fact that no two beeves or sheep are alike is the reason of our different brands being different in flavor. All brands are made by the same formula. The letter represents the day of make, and the figure the tank.

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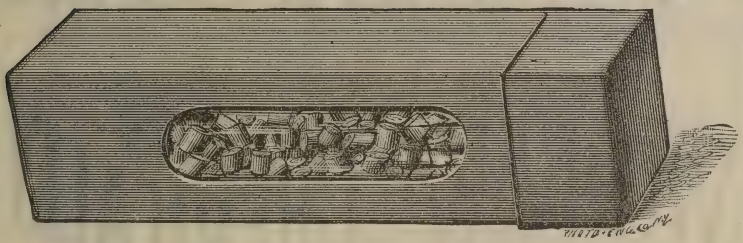
If you cannot obtain Murdock's Liquid Food from your druggist, we deliver, free of express, 12 oz. for $1 00. Any physician that has not used our Liquid Food, we will deliver free to the Boston express 12 oz.

10-6-00-1 **MURDOCK'S LIQUID FOOD CO., BOSTON.**

EXTRA PLIABLE DECIMAL GOLD ROLLS.



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Extra Pliable Decimal Gold Rolls, per 1-10 ounce,	3.50.	Per ½ ounce, 17.00
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Ideal Cement, per package, with Pigments,		1.00
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Tin Foil (our make), very tough, per book,		.50

Try some of our "Ideal" Cement Filling and "Ideal" Alloy.

Appended are testimonials for our preparations of Gold from well-known gentlemen:

I have used the Rolled Gold of Edward Rowan & Co., and like it very much. I prefer high numbers—30, 60 and 120—for facility of adaptation to walls of cavities, capacity to bear high annealing and making solid work, I know no superior make.

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271 N. Eutaw Street. BALTIMORE, Md., June 5th, 1883.

GENTLEMEN—I have used nearly all of the last ounce of your "Extra Cohesive" Decimal Gold Foil No. 4, and it affords me pleasure to inform you that it has *proved* to be a *first-class article* in every respect. It is *cohesive* and *tough* in the *highest degree*, yet possessing *less harshness* than is usually found in cohesive foils. I cheerfully thus refer to it, and so long as you continue to make such foil, I want nothing better. Very respectfully,

JAS. H. HARRIS, M. D., D. D. S.

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Late Professor of Operative Dentistry, Harvard University.

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DR. H. J. MCKELLOPS, of St. Louis, writes us, under date September 16, 1884, "You may use my name in connection with your Gold with pleasure."

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USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

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COHESIVE, SOFT No

WOLRAB'S PURE CHEMICALLY

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CASH OR NOTE ACCEPTED

Foil, $4.00 per ⅛ oz., $15.00 per ½ oz., $30.00 per 1 oz.

On orders of two ounces and more at a time a reduction of 50 cents per ounce will be given.

This gold is made in reference to the HERBST method of filling teeth with the engine. It has also proven a very desirable article for the *mallet* and *hand-pressure*.

We claim it to be superior to any other make for its peculiar *softness*. It easily adapts itself to the walls of the cavity, and when properly manipulated it makes a *solid* and *cohesive filling*. If it is to be used cohesively, a slight *warming over* the flame will have the desired result.

Very good reports have been received from prominent practitioners.

Timme's Imported German Phosphate Cement, per box, $1.00.

CUT LABEL FOR CYLINDER BOXES.

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CHEMICALLY PURE

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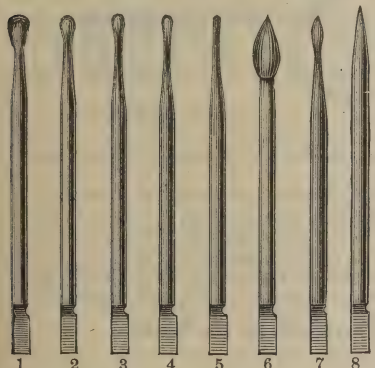

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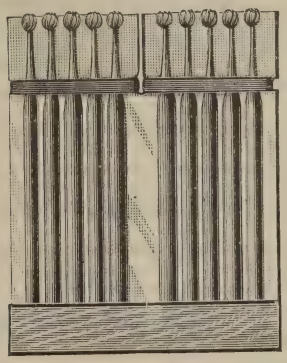

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Takes the place of gold for filling front, or any teeth.

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Test for Color—Place a button of Amalgam, that has one surface polished, into a solution of 40 to 60 grs. of sulphuret of Pottassa in 1 oz. of water. Let remain 24 to 48 hours.

Test for Leakage—Fill a small glass test tube with it, just as you would a cavity in a tooth, and drop it into a bottle containing an alcoholic solution of red aniline.

This Alloy Stands These, and Any Other Tests Deemed Requisite to Perfection.

HARDMAN'S SUPERIOR AMALGAM

Surpasses all others for strength and density of texture. Use it for Crown Work, in Molars, &c.

PRICE REDUCED TO $4.00 PER OZ.

Large discounts on both of these in quantities.

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If your depot does not keep them send to the proprietor for them.

8-4-AN-¼

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A Gold Alloy. $5.00 per ounce.

Manufactured only by

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For sale by S. S. WHITE DENTAL M'F'G CO., or sent by mail by the manufacturer.

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THE FOLLOWING TESTIMONIALS ARE RESPECTFULLY OFFERED.

Dibble at present is ahead on Amalgam.
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I believe it to be the best article of the kind in use.
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I take pleasure in recommending it as the best now known.
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COHESIVE AND SOFT

GOLD FOIL,

Used by many of the prominent dentists in this country and abroad.

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TIN FOIL AND AMALGAM.

MR. E. KEARSING, *Dear Sir:*—After having used your gold foil for five years, I can say that it gives me better satisfaction than any other that I have used. For restorations and all work where I greatly depend upon cohesive qualities it never fails.

Yours truly, A. H. SCOFIELD, D. D. S.,
113 W. 47th St., New York City.
September 8, 1884.

MR. E. KEARSING:—After using your gold foil about five years with great satisfaction, I feel that I cannot get along without it. It is especially valuable for small cavities, and for fine work in approximal cases. Respectfully, J. N. FARRAR.

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E. KEARSING, ESQ., *Dear Sir:*—In reply to your inquiry about my opinion of the merits of your Gold Foil, I can say frankly, after having had over thirty years' acquaintance with it, that it works and wears beautifully. No gold foil ever had a better endorsement than that given your gold foil by the late Dr. Marshall H. Webb, whose elegant operations live to do honor to him and reward you. Your cohesive foil, No. 4, folded into 32 or 48, is daily giving me great satisfaction, being uniformly impacted from beginning to end of the filling with the Electric Plugger. Yours very truly, E. PARMLY BROWN.

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7-4-AN-½

"THE OLD RELIABLE."

LAWRENCE'S AMALGAM.

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BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

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10-4-AN ¼

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Having been justly recognized as manufacturing a very SUPERIOR TOOTH at a very moderate PRICE, they now avail themselves of this medium by which they hope to present their merits to the Dental Profession. They have now perfected their designs as to the character of their MODELS, and have fully succeeded in being able to present to the Dentist an opportunity to select a SHADE of enamel which will harmonize and correlate with that of the natural tooth.

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FORMULA.—Listerine is the essential antiseptic constituent of Thyme, Eucalyptus, Baptisia, Gaultheria and Mentha Arvensis, in combination. Each fluid drachm also contains two grains of refined and purified Benzo-boracic Acid.

DOSE.—Internally: One teaspoonful three or more times a day (as indicated), either full strength or diluted with water, or in combination with other drugs. As a local application to ulcers, wounds and abscesses, or as a gargle, mouth-wash, inhalant or injection, it can be used ad libitum, diluted as necessary for varied conditions.

Antiseptic, Prophylactic, Deodorant, Non-Toxic, Non-Irritant, Non-Escharotic, Absolutely Safe, Agreeable, Scientific, and Strictly Professional.

LISTERINE is a well-proven antiseptic agent — an antizymotic — especially adapted to internal use and to make and maintain surgical cleanliness — asepsis — in the treatment of all parts of the human body, whether by spray, irrigation, atomization, or simple local application, and therefore characterized by its particular adaptability to the field of preventive medicine — individual prophylaxis,

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LISTERINE IS A

Perfect Tooth and Mouth Wash,

NON-SECRET AND PROFESSIONAL,

And therefore has received the Highest Recognition as the Best General Antiseptic for a

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Manufacturers of India-Rubber Pharmacopœial and Surgical Plasters, Antiseptic Dressings and Absorbents, Bandages, Oiled Silk and Muslin, and Surgical Dressings of all Descriptions.

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We have established an office for the sale of our

MINERAL TEETH

Dental Rubbers, Forceps, Etc.,

AT

No. 30 East 14th Street,

NEW YORK CITY,

And have in stock a full assortment of

FLAT TEETH for Metal Plate, and Crown and Bridge Work.
VULCANITE TEETH.
TUBE TEETH for Metal Plate and Pivoting.
Pinless, Dovetail and Open Crown for Vulcanite.

We desire to draw attention to the following: Our Improved Pink, New Pink, Whalebone, Flexible Base, Dark Elastic, Orange, Dark Brown and Improved Black Rubbers.

Phosphate and Rock Cement.
Sullivan's and Stewart's Copper Amalgam.
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Our MINERAL TEETH

Possess the following desirable qualities:

1. NATURAL FORMS—

   In great variety and of various sizes and lengths.

2. COLOURS—

   Ranging from very light to very dark shades, and closely resembling the various colours of the human teeth.

3. TEXTURE—

   Non-porous, so that they can be *ground* and *polished* to suit particular cases, therefore being well adapted for Bridge work.

4. STRENGTH—

   Possessing unusual strength on account of their fine and close texture.

5. SOLDERING—

   Bearing in an extraordinary manner the sudden transitions of temperature, so that they can be *soldered without cracking*. Our representative received corroborative evidence of this fact from many of the most prominent dentists in the United States.

CAUTION—

Some unprincipled dealers in the United States are selling imitations of our pinless teeth as our make. Dentists can easily detect the imitation, from the very rough finish and inferior coloring of these teeth.

Our DENTAL RUBBERS

Are much esteemed for their *purity, strength and solidity.*

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'ACME GOLD FOIL."

ABSOLUTELY PURE GOLD.

After twenty years as a practical Gold Beater and Refiner of Gold and Silver, and manufacturer of Gold Leaf in various shades and qualities, I am in position to state that there is no purer quality of Gold Foil manufactured, no matter how great the reputation of others, whether domestic or foreign.

Cylinders $30.00 per oz.; ⅛ oz. $3.75. Acme Cylinders are made from our Acme Soft Foil, which is absolutely pure. The name Acme is given to this Gold for the reason that it is as pure as it is possible for chemical agencies or human hands to produce.

Acme Soft Foil, $28.00 per oz.; $3.50 per book of ⅛ oz.

Crystal Surface, or Corrugated Foil, softest working Foil known, $28.00 per oz.; $3.50 per book of ⅛ oz.

Acme Folded Foil, a convenient substitute for Cohesive Foil, easy to handle and anneal $28.00 per oz.; $3.50 per ⅛ oz.

Appended a few of numerous Testimonials:

BROOKLYN, N. Y., Nov. 21, 1885.

I think Henry's Gold the finest, *without any exception*, I ever used.

FRANK P. ABBOTT.

ATHENÆUM, BROOKLYN, N. Y., Sept. 10, 1875.

MR. HENRY,

Will you have your agent call on me. I had a book (⅛ oz.) of your gold a long time since, and when the agent last called I told him I didn't know whether I liked it or not. Since then I found a package unopened, have used it and like it much.

Truly, A. N. CHAPMAN.

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MR. T. J. HENRY,

Dear Sir,—Your agent left one book of your Corrugated Gold Foil for trial, and I would not be doing you justice without saying that it works equal to any Gold I have ever used. Please send agent with a further supply and oblige,

Yours, respectfully,

V. VAN VLECK, M. D.
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One of the many testimonials we receive almost every hour in the day:

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Dear Sir,—Please send your man with Foil.

Yours truly, N. M. BECKWITH,
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Gold will be sent free of cost to any part of the United States or Canada. Remittances must accompany all orders.

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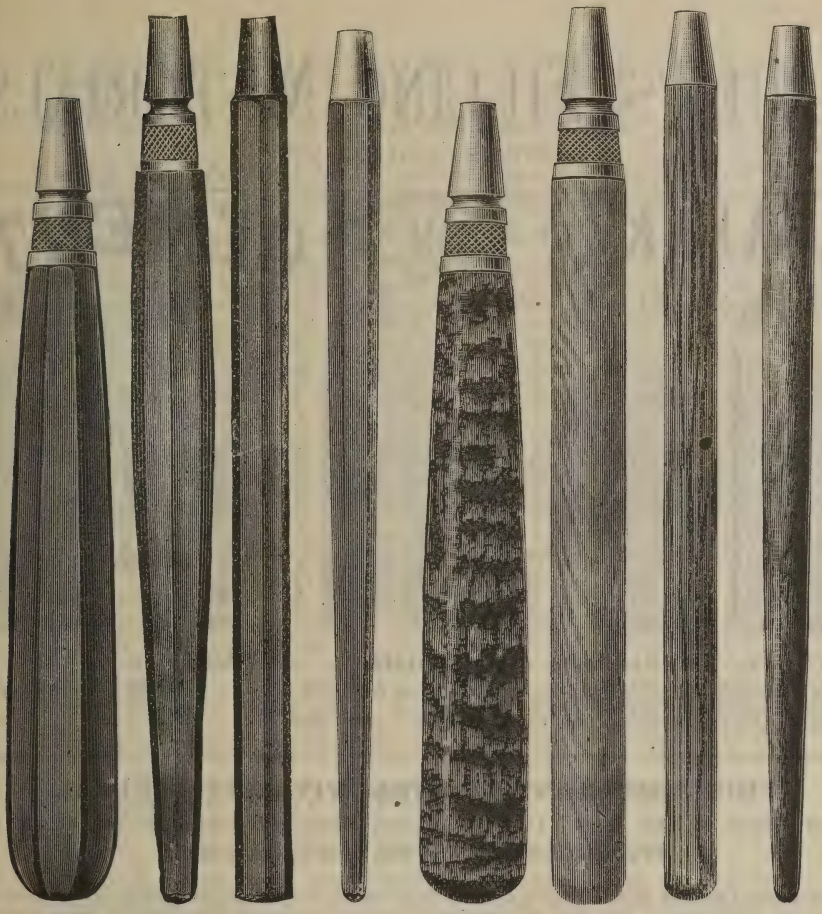

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Per doz. $5.00.		Per doz. $3.00.		Per doz. $5.00.		Per doz. $3.00	

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We desire to call your attention to the beautiful line of HARD WOOD HANDLES.

SNAKE WOOD, OLIVE, TULIP, COCABOLA, EBONY, ROSEWOOD.

After repeated demands for such Handles as here illustrated and described, and being so thoroughly satisfied of the numerous advantages as named to us, we have taken advantage of our first opportunity to produce them, and are now prepared to supply the full line.

After consulting many of the dentists as to the best sizes and shapes, we are now satisfied that the Handles as illustrated will meet every demand. We have selected distinctive colors of the fine grain and beautiful woods, and with the (6) different shades or colors of woods and the (8) sizes and styles of Handles, enables one to make up a combination of 4 doz. Handles (no two alike), thus the instrument desired when operating can readily be selected.

☞We will keep in stock all the above Handles to take the regular Cone Socket Points. In addition to this we will keep in stock, Handles Nos. 8, 9, 12, 13 to take the Snow & Lewis Plugger Points.

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Yours respectfully,

AMERICAN DENTAL MANUFACTURING CO.,

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FOUR COLORS and LIQUID.—Gray, Yellow, Medium and Light, - - $2.00 per Package.
TWO COLORS and LIQUID.—Gray and Yellow, - - - 1.50 " "
ONE COLOR and LIQUID.—Gray, Yellow, Medium, Light or Gum, - - 1.00 " "

THIS COMPOUND STANDS WITHOUT A RIVAL.

From Seven to Ten Years' Test by Leading Dentists Throughout the World has Proved it to be All That Has Been Claimed for it.

Diamond Cement should not be classed with the so-called oxy-phosphates, as is often the case—the materials of which it is composed and its process of manufacture being entirely different—hence its SUPERIORITY.

It will Harden in Water or Saliva. The liquid does not crystallize.

Two or more colors blended together (in mixing) will produce any shade desired. All bottles are lettered "*Caulk's Diamond Cement.*"

As Now Made, is Slower in Setting, giving ample time for the slowest operator to manipulate it properly.

Gum Color Cement for making tight joints in vulcanite work. Diamond Cement has been used for this purpose for many years, and in order to supply the recent demand we are making a *better color*, and an article more suitable for this purpose than can generally be found in the market. Mix thin, drop into the joints, and pack at once.

The use of cements is not sufficiently inculcated. We use it as a rule when patients are not able to pay for large gold fillings, as a matter of economy, but the fact is it saves teeth that gold would not save. I have a case in mind. Teeth which were decaying rapidly *FIVE YEARS AGO*, I filled with Caulk's Diamond Cement, and they are now in good condition.—Dr. E. S. Chisholm, in *Transactions* of the *Alabama Dental Association for* 1886.

THE UNIVERSAL VERDICT IS THAT CAULK'S DIAMOND CEMENT IS THE BEST.

A FAIR TRIAL WILL CONVINCE YOU.

CAULK'S PAR-EXCELLENCE ALLOY

This GOLD AND PLATINA ALLOY is manufactured on a NEW PRINCIPLE.
None better made. Saves Teeth where others fail.

With one exception, we were the first to manufacture Amalgam containing Gold and Platinum, although we did not call it such, simply our trade name, Par-Excellence Alloy, which fully expresses the superiority of this combination of metals over others. It is the result of a long series of experiments, and has been in constant use for nearly ten years. By our new method of manufacture there is no **guess work,** the molecular change is controlled, making each and every ingot always and absolutely alike in its properties.

Price in ⅓, ½ and I ounce packages, per ounce, $3.00; 2 ounces, $5.00.

CAULK'S WHITE ALLOY

Has been greatly improved. Costing more to produce it.
There is NOTHING EQUAL or Superior to it.

Is of a peculiar grayish-white color. When amalgamated in the hand it works with a soft and velvety feeling. It is very DENSE, and so malleable that it can be malleted with the greatest ease. Has been highly recommended in Combination Fillings of Gold and Amalgam. When properly manipulated with our PURIFIED MERCURY it will retain its color under all circumstances.

Price, ¼, ½, and I ounce Packages, per ounce, $4.00; 2 ounces, $7.00.

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AND GUTTA-PERCHA POINTS FOR FILLING ROOTS.

This form of gutta-percha, having been in the market for TEN years, has stood the greatest test of all—that of time. It is regarded as the best preparation of its kind for filling teeth in the world.

The Stopping is put up in SEALED ENVELOPES, and the Pellets, Cylinders and Points in SEALED BOXES, each bearing a *fac-simile* of our signature.

Price, in ⅛, ¼, ½ and I ounce packages, per ounce, (reduced to) $2.00.

We make a specialty of manufacturing these materials for filling teeth.

Over Fifteen Thousand (15,000) Dentists are using these Materials throughout the civilized World. What better evidence do you wish of their Superiority and Excellence?

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SOLD AT ALL DENTAL DEPOTS.

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There never was an essay read before any Medical Society on Raw Food Extracts, except on Murdock's Liquid Food, and counterfeit manufacturers of Extracts have published many of our essays to show the value of their counterfeits.

Send for Essay and DISCUSSION before the British Medical Association at Brighton England, 1886. (Essay) by the Vice-President of The American Medical Association and others on the value of Murdock's Liquid Food over all Foods and Extracts known, it being the *only* Raw Condensed Food, free from insoluble matter.

Also essay read before the American Medical Association at Richmond, Virginia, and Washington, D. C.

Its value was recognized by the profession from results obtained in the Free Hospitals that have been established and supported by our Mr. A. L. Murdock during the last four years. They now equal

140 FREE BEDS.

and contain 38,000 feet of floor.

Our Liquid Food can be retained by the weakest stomach. Four tablespoonfuls daily will make eight per cent. new blood weekly. When used for infants, never change their food, but add five or more drops of Liquid Food at each feeding, and their lost or needed vitality will be restored in less than thirty days.

Send for the Report of the Chairman of the Section of Obstetrics of the American Institute of Homœopathy, read at Saratoga at the annual meeting of 1886.

Circulars were sent by him to all the Physicians in the United States, asking what their experience was with Murdock's Liquid Food in its use for infants under, as well as over, one year old.

Then what results, with all the different Milk preparations, Grain Foods, Peptonoid Foods and Beef Extracts, compared with Murdock's Liquid Food.

The Returns show that it is the Standard Food and Extract, as the percentage of lives restored was the largest when used.

We extract from the report. After calling attention to the fact that one-quarter of the homœopathic profession are accustomed frequently to prescribe this food for children less than a year old, as well as over, he remarks—

"It is singularly adapted to scrofulous, syphilitic, and tubercular constitutions, its life-restoring power manifesting itself in each with a relative clearness and power corresponding to the order of enumeration. For fair-haired children who are inclined to grow fleshy it is more symptomatically recommended, while Duncan's *acid* babies find it particularly useful. Accordingly it is chiefly employed for marasmus and anæmic conditions resulting either from non-assimilation of food or from simple summer complaints. Should a child vomit all milk food and suffer synchronously with diarrhœa or dysentery, the demand for this food is emphatic and unmistakable; also in general irritability of the stomach, particularly if there be sour-smelling diarrhœa, the food passing through undigested. For the prematurely born it stands pre-eminent. For those 'weak and debilitated from any cause, Murdock's Food is probably the best in the world.' Should any indication of cerebral hyperæmia appear, the quantity of food must be diminished; so, too, if after its protracted use, vomiting and diarrhœa ensue, the child has been overfed. *Should the taste or odor of any given bottle chance to be disagreeable, add water until they disappear, and let the purchaser congratulate himself upon getting more nutriment than he paid for.* When given in combination with milk in cases of indigestion, the quantity of milk should be diminished until all curds disappear from the stool, the quantity of Food, of course, being proportionately increased."

The Surgical Staff at Murdock's Free Hospital for Women are in daily attendance, except Saturdays, to examine patients and assign beds. **EVERY BED FREE.**

Our Free Surgical Hospital for Women, located on Huntington avenue, above West Chester park, contains fifty (50) beds, in charge of a staff of five surgeons, members of the Massachusetts Medical Society.

Our Free Surgical Hospital for Women, located on Gainsborough street, corner of Huntington avenue, contains 50 beds, in charge of a staff of five surgeons, members of the Massachusetts Homœopathic Medical Society.

Our Free Home for Homeless Boys contains 40 beds, and is located at 11 to 21 Causeway street. Many of these boys suffer from Scrofula, Eczema, and other skin diseases, which yield quickly by the use of our Liquid Food.

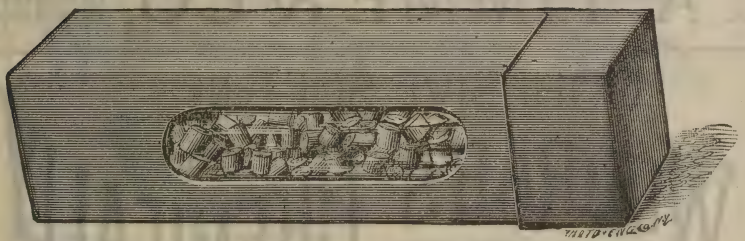
From the fact that no two beeves or sheep are alike is the reason of our different brands being different in flavor. All brands are made by the same formula. The letter represents the day of make, and the figure the tank.

If richer, it is stronger in smell and flavor, and will bear a greater reduction. It cannot be reduced so low but it will be superior to all other preparations in treating chronic cases.

If you cannot obtain Murdock's Liquid Food from your druggist, we deliver, free of express, 12 oz. for $1.00. Any physician that has not used our Liquid Food, we will deliver free to the Boston express 12 oz.

10-6-00-1 **MURDOCK'S LIQUID FOOD CO., BOSTON.**

EXTRA PLIABLE DECIMAL GOLD ROLLS.



(This Engraving represents a Phial of size 1 of the above designated Gold, inclosed in a Box.)

Gold Foil and Gold Rolls, per 1-10 ounce,	$3.00.	Per ounce,	$28.00
Extra Pliable Decimal Gold Rolls, per 1-10 ounce,	3.50.	Per ½ ounce,	17.00
Untrimmed Foil, per 1-5 ounce book,			5.50
Ideal Cement, per package, with Pigments,			1.00
Rowan's Ideal Alloy, No. 1, per 1 oz. $5.00, 2 ozs. $9.00, 4 ozs.			16.00
Rowan's Ideal Alloy, No. 2, per 1 oz. $3.00, 2 ozs. $5.50, 4 ozs.,			10.00
Tin Foil (our make), very tough, per book,			.50

Try some of our "Ideal" Cement Filling and "Ideal" Alloy.

Appended are testimonials for our preparations of Gold from well-known gentlemen:

I have used the Rolled Gold of Edward Rowan & Co., and like it very much. I prefer high numbers—30, 60 and 120—for facility of adaptation to walls of cavities, capacity to bear high annealing and making solid work, I know no superior make.

W. H. ATKINSON,
October 23, 1882. 41 E. 9th Street, N. Y.

271 N. Eutaw Street. BALTIMORE, Md., June 5th, 1883.

GENTLEMEN—I have used nearly all of the last ounce of your "Extra Cohesive" Decimal Gold Foil No. 4, and it affords me pleasure to inform you that it has *proved* to be a *first-class article* in every respect. It is *cohesive* and *tough* in the *highest degree*, yet possessing *less harshness* than is usually found in cohesive foils. I cheerfully thus refer to it, and so long as you continue to make such foil, I want nothing better. Very respectfully,

JAS. H. HARRIS, M. D., D. D. S.

No. 100 Boylston Street. BOSTON, MASS., June 30, 1883.

Sirs—I have used your Rolled Gold for several years. When I wish to use *cohesive* gold, I prefer your No. 30 Rolled to any gold with which I am familiar. It is very tough, soft and cohesive. In short, pleasant and easy to work, and makes a compact, even and finished filling. Yours truly,

L. D. SHEPARD,
Late Professor of Operative Dentistry, Harvard University.

S. H. GUILFORD, A.M., D.D.S., (*Professor of Operative and Prosthetic Dentistry, Phila. Dental College,*) has permitted us to state that he uses and recommends our "Gold Rolls."

DR. H. J. MCKELLOPS, of St. Louis, writes us, under date September 16, 1884, "You may use my name in connection with your Gold with pleasure."

H. C. REGISTER, M. D., D. D. S., of Philadelphia, writes us, "You are permitted to use my name in recommending your Gold, as second to none in the world!"

CHAS. L. STEEL, M. D., D. D. S., of Richmond, Va. (*Demonstrator Operative Dentistry, University of Maryland*). DEAR SIRS—Your last ounce of Gold duly received, and, as usual, works superbly. I have used many makes of Cohesive Foil, but for some time past have confined myself to yours exclusively, as I find none other so near perfection.

A. H. FULLER, M. D., D. D. S. (*Professor of Operative Dentistry, Missouri Dental College*). Should you so desire you may state that I have been using your Gold for the past year or more, and find it first-class in every respect. Shall send you an order in a few days for more.

WM. CARR, M. D., 35 West 46th Street, New York, permits us to state that he endorses our Golds. He uses Nos. 3 and 4 soft; No. 60 Rolled; and Gold Rolls.

EDWARD ROWAN & CO.

No. 1048 Third Avenue, S. W. Corner 62d Street, New York.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

REFERENCES FURNISHED ON REQUEST.

C. A. TIMME & CO. Importers of

CASH MUST ACCOMPANY THE ORDER.

COHESIVE, SOFT No

WOLRAB'S PURE CHEMICALLY

GOLD FOIL

C. A. TIMME & CO.

IMPORTERS of DENTISTS SPECIALTIES

SOLE AGENTS FOR THE U. S.

190 HUDSON ST. HOBOKEN N. J.

ANOTHER NAME ON

Foil, $4.00 per ⅛ oz., $15.00 per ½ oz., $30.00 per 1 oz.

On orders of two ounces and more at a time a reduction of 50 cents per ounce will be given.

This gold is made in reference to the HERBST method of filling teeth with the engine. It has also proven a very desirable article for the *mallet* and *hand-pressure*.

We claim it to be superior to any other make for its peculiar *softness*. It easily adapts itself to the walls of the cavity, and when properly manipulated it makes a *solid* and *cohesive filling*. If it is to be used cohesively, a slight *warming over* the flame will have the desired result.

Very good reports have been received from prominent practitioners.

Timme's Imported German Phosphate Cement, per box, $1.00.

CUT LABEL FOR CYLINDER BOXES.

CASH MUST ACCOMPANY THE ORDER.

1/8 oz

WOLRAB'S CELEBRATED GERMAN GOLD.

№ 0 1 2 3 4

CHEMICALLY PURE

for the HERBST METHOD

MADE EXPRESSLY of filling TEETH

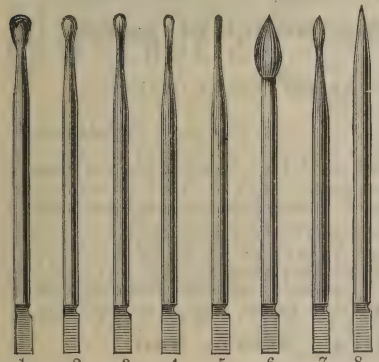
C. A. TIMME & Co IMPORTERS OF DENTISTS SPECIALTIES

HUDSON St. HOBOKEN N.J.

SOLE AGENTS FOR THE U.S.

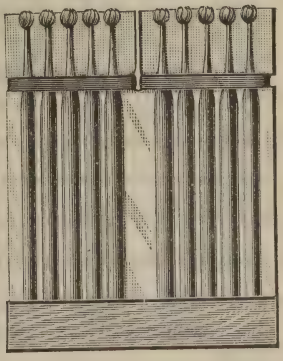
Cylinders, $4.50 per ⅛ oz., $17.00 per ½ oz., $34.00 per 1 oz.

Instruments for the Herbst Method



Made of Agate, per set, - - - - $10.00
The same made of Steel, as shown in the cut, per set, - - - - - 4.00

Imported Burs, Stone Cut.



Unequaled in temper, arranged on wooden cards, per card of ten, - - - - $ 3.00
In boxes of ten cards, - - - - 25.00

3-5-AN-2.

HARDMAN'S WHITE ALLOY

Takes the place of gold for filling front, or any teeth.

PRICE, $3.00 PER OZ.

Test for Color—Place a button of Amalgam, that has one surface polished, into a solution of 40 to 60 grs. of sulphuret of Pottassa in 1 oz. of water. Let remain 24 to 48 hours.

Test for Leakage—Fill a small glass test tube with it, just as you would a cavity in a tooth, and drop it into a bottle containing an alcoholic solution of red aniline.

This Alloy Stands These, and Any Other Tests Deemed Requisite to Perfection.

HARDMAN'S SUPERIOR AMALGAM

Surpasses all others for strength and density of texture. Use it for Crown Work, in Molars, &c.

PRICE REDUCED TO $4.00 PER OZ.

Large discounts on both of these in quantities.

MADE AND FOR SALE BY

J. HARDMAN, MUSCATINE, IOWA.

If your depot does not keep them send to the proprietor for them.

8-4-AN-¼

DIBBLE'S WHITE AMALGAM

A Gold Alloy. $5.00 per ounce.

Manufactured only by

W. H. DIBBLE, MIDDLETOWN, CT.

For sale by S. S. WHITE DENTAL M'F'G CO., or sent by mail by the manufacturer.

ALSO MANUFACTURER OF THE DIBBLE PLUGGER.

THE FOLLOWING TESTIMONIALS ARE RESPECTFULLY OFFERED.

Dibble at present is ahead on Amalgam.
NEW YORK, Jan. 9, 1883. J. W. CLOWES, 667 Fifth Avenue.

I believe it to be the best article of the kind in use.
W. H. DWINELLE, M. D., 27 West 34th St., New York.

I take pleasure in recommending it as the best now known.
GEORGE H. PERINE, 74 West 50th St., New York.

Have used it three years, and it has given me better results than any other.
O. E. HILL, M. D. S., 160 Clinton St., Brooklyn, N. Y.

I am satisfied it is the best in use. I can recommend it to the profession.
C. E. GRAVES, 393 Jay Street, Brooklyn, N. Y.

It is the best I have ever used. MILES H. DODGE, 20 E. 33d St., New York.

$5.00 per oz. or 3 oz. for $12.50. Sent by Mail.

3-5-AN-½.

E. KEARSING'S

COHESIVE AND SOFT

GOLD FOIL,

Used by many of the prominent dentists in this country and abroad.

——ALSO EXTRA FINE——

TIN FOIL AND AMALGAM.

MR. E. KEARSING, *Dear Sir:*—After having used your gold foil for five years, I can say that it gives me better satisfaction than any other that I have used. For restorations and all work where I greatly depend upon cohesive qualities it never fails.

Yours truly, A. H. SCOFIELD, D. D. S.,
113 W. 47th St., New York City.
September 8, 1884.

MR. E. KEARSING:—After using your gold foil about five years with great satisfaction, I feel that I cannot get along without it. It is especially valuable for small cavities, and for fine work in approximal cases. Respectfully, J. N. FARRAR.

MR. E. KEARSING, *Dear Sir:*—After having used your gold, both soft and cohesive, for nearly five years, I find it has given me entire satisfaction in all cases.

Yours truly, J. BOND LITTIG, D. D. S.,
113 W. 47th St., New York City
September 13, 1884.

Dear Sir:—After using your gold foil almost uninterruptedly for the last six years, I have no hesitation in stating that it stands without a rival for performing what are known as contour operations. It answers equally well for small fillings unannealed when properly manipulated. Very truly, H. C. LONGNECKER.

FLUSHING, L. I., Sept. 11, 1884.

E. KEARSING, ESQ., *Dear Sir:*—In reply to your inquiry about my opinion of the merits of your Gold Foil, I can say frankly, after having had over thirty years' acquaintance with it, that it works and wears beautifully. No gold foil ever had a better endorsement than that given your gold foil by the late Dr. Marshall H. Webb, whose elegant operations live to do honor to him and reward you. Your cohesive foil, No. 4, folded into 32 or 48, is daily giving me great satisfaction, being uniformly impacted from beginning to end of the filling with the Electric Plugger. Yours very truly, E. PARMLY BROWN.

101 HOYT STREET,

P. O. Box 182. BROOKLYN, N. Y.

7-4-AN-½

"THE OLD RELIABLE."

LAWRENCE'S AMALGAM.

RES NON VERBA. A. L. LAWRENCE. TRADE MARK

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the Trade should be addressed accordingly.

Price, $3.00 per Ounce. For sale at all respectable Dental Depots.

Manufactured only by

AMBROSE LAWRENCE, M. D., 476 Columbus Avenue, Boston, Mass.

10-4-AN ¼

The Wilmington Dental Manufacturing Co.

MANUFACTURERS OF

ARTIFICIAL TEETH,

Nos. 1010 and 1012 KING STREET,

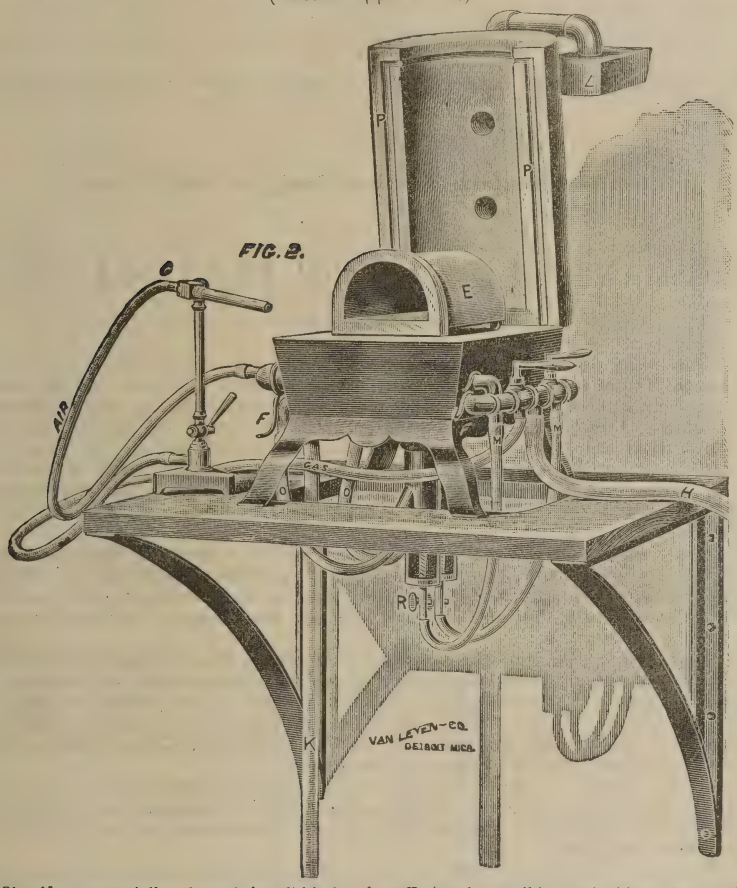
WILMINGTON, DELAWARE.

Having been justly recognized as manufacturing a very SUPERIOR TOOTH at a very moderate PRICE, they now avail themselves of this medium by which they hope to present their merits to the Dental Profession. They have now perfected their designs as to the character of their MODELS, and have fully succeeded in being able to present to the Dentist an opportunity to select a SHADE of enamel which will harmonize and correlate with that of the natural tooth.

☞ *For sale by Dental Dealers everywhere. Send for price list.*

DR. C. H. LAND'S
COMPOUND
GAS OR GASOLINE FURNACE

(Patent Applied for.)



Size No. 1, especially adapted for all kinds of muffle work, crucible work, blow-pipe work, forging and brazing. It is the most complete furnace ever devised for the chemist, assayer, jeweler, dentist and metallurgist. Continuous gum and porcelain can be baked in from 15 to 20 minutes in the most perfect manner and with unerring precision. Send for descriptive circular.

Instructions—In order to enable those who contemplate using gas furnaces and to comprehend their great superiority over coal or coke fires, my laboratory will be open free to all, and with those who desire a special course in continuous gum work, enamel metallic coatings and enamel fillings, favorable arrangements can be made. A visit to my laboratory will be of the utmost value. Here furnaces are operated by both foot and steam power, using either gas or gasoline. Thus practical working can be seen to the best advantage.

Address, **C. H. LAND, 264 Woodward Ave., Detroit, Mich.**

10-6-AN 1.

DALY'S CHEMICALLY PURE

GOLD LINING

RUBBER SORE MOUTH CURED AND PREVENTED.

Each Book Contains 8 Square Inches of Gold Lining.

NEW AND OLD RUBBER PLATES LINED.

This lining presents advantages that no other can. It is formed entirely of chemically pure gold. It is united mechanically with the rubber of the plate without the intervention of any other metal or of rubber or any other cements.

Being so formed and so united there can be no tarnish or chemical change of state from the action of the secretions of the mouth, or from the effects of galvanic action between different metals in contact. Its union with the rubber is so perfect that it cannot be separated from it, and its removal involves the destruction both of the lining and the portion of rubber with which it is in contact.

Every surface of the plate can be lined with it if desired. Old plates, no matter how long worn, can be lined with it, preserving perfectly the fit and articulation. Being formed entirely of pure gold it will not only prevent rubber sore mouth, but will cure that disease, when applied to rubber plates that have produced it.

That rubber sore mouth prevails under rubber plates to an alarming and much greater extent than is generally appreciated, is proven by the testimony, based on actual observation, of such eminent men in our profession as Drs. Taft, Atkinson, Walker, Kulp, Dorrance, Cutler, Allen, Eames, Cushing, Morrison, Judd, Flagg, Younger, Sturgiss, H. A. Smith, Crouse, and others, as well as of members of the medical profession.

This testimony is found on record in the printed proceedings for the last twenty years of such bodies as The American Dental Association, The American Dental Convention, The Southern Dental Association, and many District and State Societies.

The cost of lining plates will be seen to be small by taking the price of a book of it and counting how many plates of different sizes can be covered by eight square inches of lining—the amount contained in each book. Full instruction with each book.

Price per book, - - - - - - - $3.50.

DALY GOLD LINING DENTAL CO.,

AND ALL DENTAL DEPOTS. **WASHINGTON, D. C.**

10-6-an-1.

TO THE DENTAL PROFESSION

— AND —

DEALERS IN DENTAL GOODS

Having sold our patents, plant, stock and the good will of our business to The S. S. White Dental Manufacturing Company, and being about to dissolve our corporate existence, we request that all orders for the Hand Pieces and Right Angles formerly manufactured by us, also repair work on same, be sent to the above-named Company, which will continue to manufacture them.

THE NEW YORK DENTAL MANUFACTURING CO.

"1000 FINE" GOLD FOIL.

This high standard Gold was introduced many years ago by Messrs. Johnston Bros., and recently revived by us at the solicitation of many practitioners who knew its value. It at once regained its old prominent position, and it has a large sale, being considered by many *the best foil ever made*. As its name implies, all varieties of this Foil, and cylinders and ribbons made from it, will stand the most searching test for purity. The crystallization is so controlled in the process of manufacture as to give the preparations made from it peculiarly fine characteristics. It has a remarkable softness, which enables the operator to pack it like *damp snow*, while by heating all grades of cohesiveness may be obtained without impairing any of its working qualities.

"1000 *Fine*" *Soft Gold Foil.* Very soft and easily worked, adapting itself readily to the walls of the cavity, yet tough and strong. Can be made cohesive by heating.

Supplied in Nos. 2, 3, 4, 5, 6, 10, 20, 30, 40, 60 and 120.

"1000 *Fine*" *Cohesive Foil.* For use cohesively only, and will be found to contain that quality sufficiently for most cases as taken from the book; can be made more cohesive by heating.

Supplied in Nos. 2, 3, 4, 5, 6, 10, 20, 30, 40, 60 and 120.

"1000 *Fine*" *Unannealed Gold Foil.* This is put up just as it comes from the beaters' skins. Many operators prefer this Foil, which they use cohesively, believing that it works more kindly and becomes more cohesive if annealed but once—just before it is used.

Supplied in Nos. 3, 4, 5 and 6.

"1000 *Fine*" *Rolled Gold, Cohesive.* For finishing surfaces, contours, etc. Prepared entirely by rolling

Supplied in Nos. 20, 30, 40, 60, 120 and 240.

"1000 *Fine*" *Corrugated Soft Gold Foil.*
"1000 *Fine*" " *Cohesive Gold Foil.*

These are the regular "1000 Fine" Foils, with the addition of a beautifully corrugated surface, which in many operations facilitates rapid work. We would call special attention to the surface of these Foils, as we believe it to be better than that of any other corrugated foil in the market.

Supplied in Nos. 3, 4, 5, and 6.

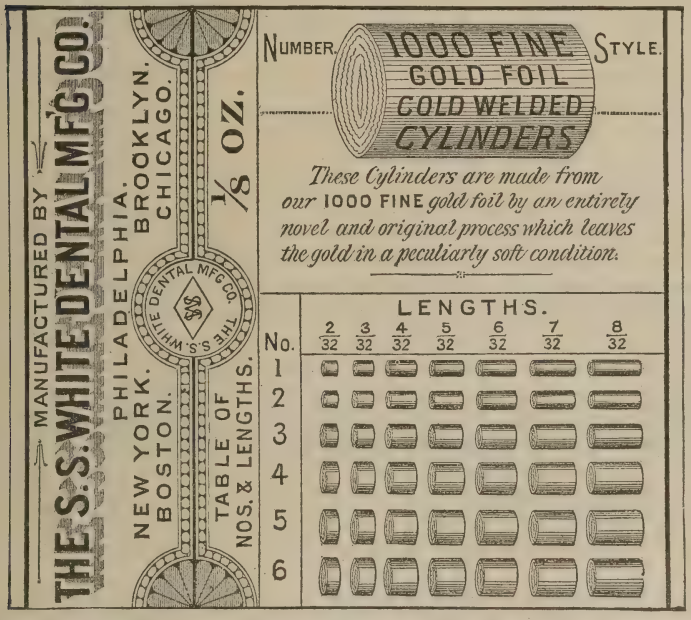
Prices for all varieties of "1000 *Fine*" *Gold Foil.*

⅛ oz.		$ 4.00
½-oz.		15.00
1-oz.		30.00
2 ounces at one time,	per oz.	29.00

For all numbers except No. 2, which is $2.00 per ounce extra.

"1000 FINE" COLD-WELDED CYLINDERS.

PATENT DECEMBER 19, 1871.



These Cylinders, introduced in 1884, quickly met with approval. The ordinary way of welding gold cylinders to prevent their unrolling is by heating the free end. This has a tendency to harden that portion of the cylinder, thus rendering the mass uneven in texture. By our peculiar process of cold-welding this defect is entirely overcome and the cylinders are homogeneous

"1000 *Fine*" *Cold-Welded Soft Gold Cylinders.* Soft and very adaptable, but sufficiently cohesive when heated.

Sizes 1, 2, 3, 4, 5, 6, and assorted.

"1000 *Fine*" *Cold-Welded Cohesive Gold Cylinders.* Although cohesive, they are readily adaptable, and very rapid work can be done with them.

Supplied in Nos. 1, 2, 3, 4. 5, 6, and assorted.

PRICES.

⅛-oz.		$ 4.00
½-oz.		15.00
1-oz.		30.00
2-ozs. at one time,	per oz.	29.00

FLEXIBLE FOLDED RIBBON GOLD, "1000 FINE."

This is another comparatively new preparation, introduced in 1884 with gratifying success. To the large class of operators who use foil in the form of Ribbons, this preparation offers the advantages of saving the time of folding the ribbons, of mathematical exactness, each ribbon of a given width being exactly like every other, and of purity and cleanliness. It being untouched by the hands, the gold is in the same condition as when the foil comes from the beaters' skins. Made entirely by machinery, of strips of No. 4 "1000 Fine" Foil, laid up smoothly and evenly into ribbons of 8 thicknesses, with the cut edges turned into the center of the ribbons, which are then passed between milled rollers to render them pliable, so that each ribbon can be readily folded back and forth upon itself and welded in its place, until the work is completed.

Put up in packages of ⅛-oz., designated as Narrow, Medium, and Wide, Styles A and B.

The package marked Narrow contains an assortment of Ribbons $\frac{2}{32}$, $\frac{3}{32}$, and $\frac{4}{32}$ of an inch wide.

The Medium contains $\frac{5}{32}$, $\frac{6}{32}$, and $\frac{7}{32}$ of an inch wide.

The Wide contains $\frac{8}{32}$ of an inch wide.

"1000 Fine" Flexible Folded Ribbon Gold, Style "A."

For contour and cohesive work.

When freshly annealed, these Ribbons are thoroughly cohesive, while the exactness with which the machine lays the folds of foil insures the most perfect form of gold ever produced for filling teeth on the cohesive principle. The layers of foil composing the ribbon lie so evenly together that the gold can be welded into a dense, solid mass with the least possible labor. Any method of preparing foil for cohesive fillings which rumples or wrinkles the foil, as by the common mode of twisting it into ropes and then cutting it into pellets, is seriously objectionable, because it has a tendency to make the gold work harshly under the instrument; and it almost invariably produces a filling of uneven density. The "Style A Folded Ribbon" Gold has been devised expressly to overcome these difficulties.

"1000 Fine" Flexible Folded Ribbon Gold, Style "B."

Made from "1000 Fine" Dead Soft Foil and especially designed for cylinder fillings.

To each purchaser of a trial package of Style B Ribbons an ivory cylinder-roller, the device of Dr. W. A. Bronson, will be given. With this roller the operator can easily and quickly make from the ribbons cylinders of any desired length and size, and of a quality unequaled by any hitherto offered to the profession. The Style B Ribbons are reliably cohesive when annealed.

The care and time necessary for the manufacture of the Folded Ribbon Gold increase the cost considerably as compared with the ordinary preparations of gold, but we are enabled to offer it at the following

PRICES.

⅛-oz.	$ 4.00
½-oz.	15.50
1-oz.	31.00

VELVET GOLD CYLINDERS.

TRADE-MARK "VELVET GOLD."

When this superb preparation of Gold was first put upon the market we made the broad claim that it would be found to possess a wider range of usefulness than any other form of gold ever offered to dentists. It has now been before the profession long enough to prove our claim. Had it been on the market when "cohesive" gold was introduced, the schism between the "cohesive" and "soft" golds would never have arisen. The Velvet Gold would have answered all purposes. It is the softest gold ever used in dentistry, and with its unequaled softness it combines toughness and tenacity, condensing quickly under the instrument. Its peculiar softness is accurately expressed by the term "velvet;" hence its name. It may be packed by any of the ordinary methods,—with the Herbst burnishers, with the automatic, hand, or electric mallet, or by hand presure,—and by whatever method it is used it acts kindly, is readily adapted to the walls of the cavity, and adheres firmly.

The manufacture of the Velvet Gold Cylinders involves the necessity for the most constant care and about double the labor expended on ordinary forms. We are therefore compelled to charge a higher price than for ordinary cylinders, but the superiority of the Velvet Gold Cylinders will, we feel confident, make their use to many practitioners an economy when compared with cheaper goods.

Put up in $\frac{1}{16}$-oz. packages in Nos. 1, 2, 3, 4, 5, 6, and assorted.

PRICES.

$\frac{1}{16}$-oz.	$ 2.25
$\frac{1}{2}$-oz.	17.50
1 ounce,	35.00

PACK'S GOLD CYLINDERS.

Patented Dec. 17, 1871, and July 4, 1876.

Universally known, highly approved, and thoroughly reliable. The sale of these Cylinders has steadily increased, and they are to-day more generally used than at any previous time since their introduction. We have recently made improvements in our processes of manufacture, the result of which is greater uniformity in the Cylinders than before.

FOUR VARIETIES.

Semi-Cohesive Crystal Foil Cylinders. Soft Crystal Foil Cylinders. Semi-Cohesive Crystal Loose-Rolled Cylinders. Soft Crystal Loose-Rolled Cylinders.

We can also furnish, on order, these Cylinders of plain foil, either Soft or Cohesive.

¼ ½ 1. 2. 3. 4. 5.

Each of these varieties is put up in $\frac{1}{8}$-oz. boxes (Nos. ¼, ½, 1, 2, 3, 4, 5, and assorted), in a manner calculated to preserve the Gold unimpaired for any length of time.

PRICES.

$\frac{1}{8}$-oz.		$ 4.00
$\frac{1}{2}$-oz.		15.00
1 ounce		30.00
2 ounces at one time,	per oz.	29.00

PORCELAIN TEETH.

Artificial Teeth are to be examined, criticised, approved, or condemned not with reference to any single quality, but as to their *combination* of essential characteristics.

By *comparison* with natural teeth in reference to SHAPE, COLOR, TEXTURE, TRANSLUCENCY, and VITAL APPEARANCE. Some of these tests require to be made *in the mouth*, and as well by artificial light as by daylight.

They should be further examined by contrast with teeth of other manufacturers, with reference to strength, lightness, adaptability, and resistance to changes of temperature.

The artistic products which COMBINE these essentials may be justly entitled Artificial Teeth *par excellence.*

We have now in stock the largest variety of forms, sizes and shades of PORCELAIN TEETH and CROWNS to be found in the world.

We make a constant and earnest study of the needs of the profession, and persistent effort to meet every want as developed by our own observation or described by others, and it is getting to be a difficult matter to suggest any possible case requiring dental substitution for which our stock will not supply the material.

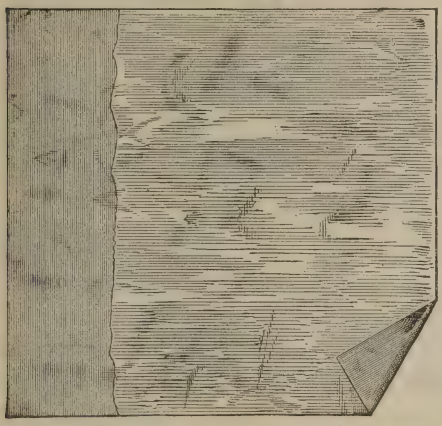
THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia. New York. Boston. Chicago. Brooklyn.

THE VULCAN GOLD LINING.

A PERFECT GOLD COVERING FOR RUBBER PLATES.

PATENT APPLIED FOR.



In this Gold Lining we claim advantages over others as follows:

The Gold is applied in one piece to the surface to be covered.

No extra care is required in packing the flask.

The lining is composed of chemically pure Gold with a thin covering of pure silver. The union between the rubber plate and the gold covering is mechanical; and the sulphur in the rubber when set free by the action of vulcanizing attacks the silver, sulphurizing the surface and to this the rubber adheres perfectly.

If the rubber plate is covered on both sides it is tougher when vulcanized, for the reason that during this process the pressure against the metal gives the plate a surface more dense than it will have if vulcanized in contact with plaster.

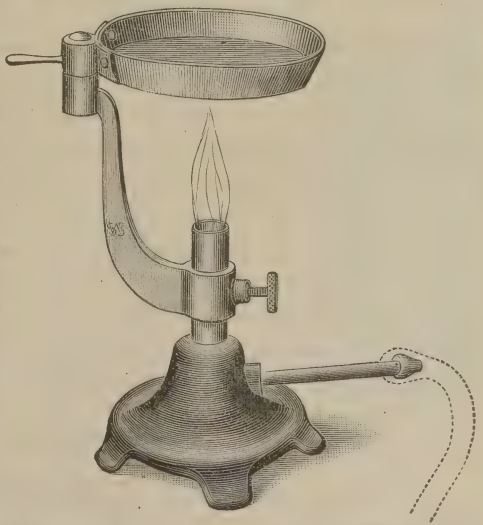
The sheets are of the thickness of No. 20 foil, and each book contains about fifty-four (54) square inches; more than enough to cover six ordinary size plates on one side, or four plates on both sides.

Price, per package, containing 54 square inches, . . $5.00

EXTENSION WAX TRAY AND LAMP.

Tray invented by DR. C. S. W. BALDWIN.

An ingenious little appliance to facilitate the "waxing up" of sets of teeth previous to flasking. Wax placed in the Tray is soon melted, after which the flame is turned down low. The wax remains in the melted state, and a heated spatula dipped into it carries the proper quantity to the desired spot without risk of fouling the flame tube. The Tray can be lifted off or swung around from over the burner when the flame is desired for some other use, or the entire attachment may be removed from the lamp by loosening the set-screw. It will be found to be a very desirable addition to the laboratory equipment. The lamp used is our No. 14 Burner.



Price, Extension Wax Tray, ... $0.75
" No. 14 Burner, ...75

To the Dental Profession.

GENTLEMEN:

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

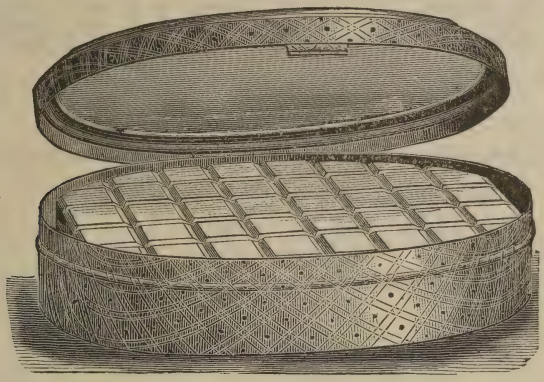
I. W. LYON, D.D.S.,

88 MAIDEN LANE, NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

DR. I. W. LYON'S TOOTH TABLETS



For Purity, Efficiency, Neatness and Convenience these Tablets have no equal as a Dentifrice. They are put up in Seamless Metallic Boxes, which are impervious to air and moisture, and may be carried on a journey without danger of breaking.

HIGHLY INDORSED BY EMINENT DENTISTS.

PRICE **50** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

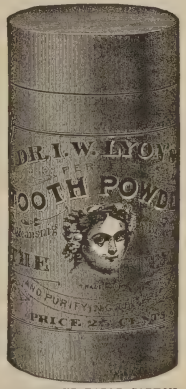
DR. I. W. LYON'S

PERFECT TOOTH POWDER

ENAMELLED METAL BOX REDUCED IN SIZE.

This Powder is carefully prepared by an experienced dentist, familiarized by practice with the wants of the teeth. It is absolutely pure and free from acid, grit, or other hurtful substances, and is highly recommended by the most eminent men in the profession. It gives a *delightfully refreshing sensation* in the mouth, strengthening and healing the gums, and imparting a fragrance to the breath which is very agreeable.

Put up in an enamelled metal box with sprinkler top, free from the mishaps incident to glass or wood, and very convenient for use, especially in traveling.



ENAMELLED PAPER CARTON REDUCED IN SIZE.

PRICE **25** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

I. W. LYON, D.D.S., PROPRIETOR,

88 MAIDEN LANE, NEW YORK.

3-5-AN-2

AKRON
DENTAL RUBBER

The materials of which this Rubber is composed
are prepared by new processes,
which insure

ABSOLUTE PURITY,

Resulting in a Product of Wonderful

DENSITY, FIRMNESS AND STRENGTH.

It is especially designed to meet the requirements of those who seek to produce the most perfect and artistic work.

It is exceedingly tough and light, and takes a beautiful polish.

Plates may be made very thin without danger of splitting or crumbling away about the edges.

It can be used with the best results for making partial lower dentures, an advantage which no other rubber possesses.

It has the unqualified approbation and endorsement of the profession everywhere, and never fails to give satisfaction.

It will cost you nothing to try it.

Send for samples and prices.

AKRON RUBBER WORKS,

AKRON, OHIO.

Sold by all Dental Depots.

PARSON'S EUREKA SILVER ALLOY.

I am manufacturing and offering for sale a superior Amalgam or Silver Alloy, which has the following properties: It is a quick setting alloy, has great edge strength, therefore a superior alloy for mounting artificial crowns on natural roots. Fillings may be finished and polished in fifteen or twenty minutes after inserting, and retain their polish and silvery whiteness remarkably.

It does not spheroid or bulge like many alloys of inferior grade.

If you wish to use one of the nicest working alloys in the market, send for ½ oz., **$1.50**; 1 oz., **$3.00**; or 4 oz. for **$10.00**.

Let the profession give my alloy a fair and impartial trial, and I feel confident I shall receive a liberal amount of patronage. Respectfully,

DR. W. H. PARSONS,

Sole Proprietor and Manufacturer. WAMEGO, KANSAS, U. S. A.

TESTIMONIALS.

HOUSTON, TEXAS, April 26, 1885.

DR. PARSONS—*Dear Sir:* The Alloy came safely to hand. I am very well pleased with it. Very respectfully, DR. S. E. JONES.

ROCHESTER, N. Y., April 13, 1885.

H. W. PARSONS—*My Dear Friend:* The boxes of Amalgam were duly received, and I consider it very nice indeed. Respectfully Yours, DR. S. G. WOOD.

RICH HILL, Mo., Feb. 9, 1886.

DR. H. W. PARSONS—*Dear Dr.:* Yours of the 5th inst. at hand, and in reply would say your Eureka Alloy is the best I ever used. Respectfully, C. E. JONES, D.D.S.

COLUMBIA, Mo., March 16, 1886.

DR. H. W. PARSONS—*Dear Sir:* I have used your Eureka Silver Alloy for one year, and am much pleased with it. I find its properties all that you represent them to be. Respectfully, DR. N. HOCKENSMITH.

7-6-00-½

W. C. JACOBS, MANAGER.

1-7-AN-½

CHERRY MALT PHOSPHITES.

This preparation is believed to be the only Malt Extract continuously acceptable to the stomach. The attention of those who have ceased prescribing other extracts of malt because of excessive sweetness is specially called to this.

CHERRY MALT PHOSPHITES is a combination of Wild Cherry, the condensed extract of the important Cereals and the Elixir of the Hypo-phosphites. Its flavor is delicious, and it is medicinally invaluable in all cases of General and Nervous Debility, Dyspepsia, Imperfect Nutrition, Impure Blood, Wasting Diseases of Children and Adults. It is extensively prescribed in European countries, and has received the cordial endorsement of the leading practitioners of this country.

Price $1.00 per Bottle.

To Physicians not familiar with its merits, who will pay express charges, we will send a full-sized bottle *free*.

Please mention this journal.

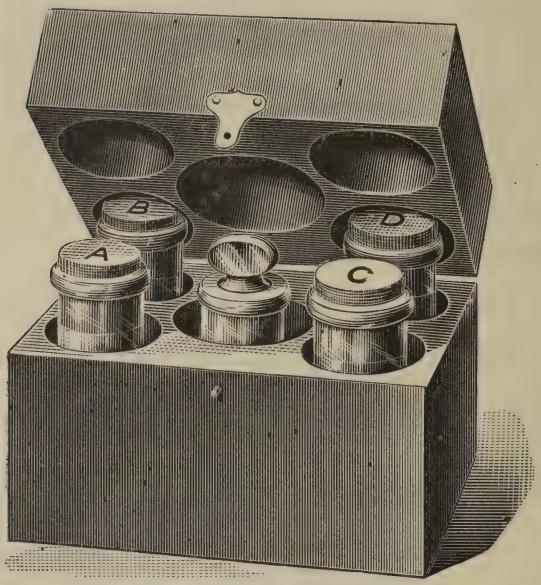
LIEBIG'S LIQUID FOOD,

A Concentrated Extract of Beef possessing both tonic and nutrient properties.

MANUFACTURED ONLY BY THE

LIEBIG PHARMACAL CO., N. Y.

SMITH'S ADAMANTINE PHOSPHATE CEMENT.



INSOLUBLE.

TWO COLORS.

Price, - - *$1.00.*

Also in Cedar Cases, as shown in cut, containing four colors of Powder and one bottle of Liquid, glass-stoppered.

A, White; B, Brown; C, Yellow; D, Bluish.

PRICE, $2.00

SMITH'S

Oxychloride of Zinc.

PRICES—Plain Form, one-ounce, - - - - - - each $1.00
Cedar Cases, as shown in cut, containing four colors of Powder and one bottle of Liquid, glass-stoppered, - - - - " $2.00
A, White; B, Brown; C, Yellow; D, Bluish.

10-6-00-½ **DR. J. H. SMITH, New Haven, Conn.**

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If you desire to patent your invention, enclose your address, *with stamp for reply*, and the undersigned will take pleasure in giving you the benefit of his *large* experience with United States and foreign patent lawyers.

B. M. WILKERSON, M. D., D. D. S.,

(Inventor of the Wilkerson Dental Chair, etc.)

No. 1215 Madison Ave., Baltimore, Md.

12-6-00-½

PURE PRODUCTS FOR DENTAL PRACTICE!

Among the preparations we manufacture which are of use to the Dental Profession, we have pleasure in calling attention to the following, which we believe, on account of purity and convenience, will commend themselves to our dental friends.

COCAINE.

Cocaine Alkaloid, pure in crystals; Citrate solution, 4 per cent.; Hydrobromate, pure in crystals and in solution, 4 per cent.; Muriate, pure in crystals and solutions, 2 and 4 per cent.; Oleate, 5 per cent., and Salicylate solution, 4 per cent. Also *Complete Cocaine Case*, embracing every essential for topical and hypodermic use. Send for pamphlet.

Pure MENTHOL, in crystals and pencils; pure CHLOROFORM; BROMIDE OF ETHYL; NITRITE OF AMYL PEARLS, invaluable in case of sudden syncope and a restorative of enfeebled circulation.

PARKE, DAVIS & CO.,

MANUFACTURING CHEMISTS,

DETROIT, MICH. New York Branch: 60 Maiden Lane.

1-7-AN-⅓.

ALFRED J. NICKOLDS,

Refiner and Manufacturer of

Dentists' Chemically Pure 1000 Fine

GOLD FOILS, GOLD PELLETS,

TIN FOIL, ETC.,

238 McDonough Street,

BROOKLYN, N. Y.

Special attention is invited to *Nickolds' Improved Soft Gold Foil* and *prepared Pellets;* pronounced the best article of Gold Foil extant.

7-4-AN-¼

LINE YOUR RUBBER PLATES

— WITH —

Robinson's Improved

VULCANIZABLE GOLD.

It is now more than two years since Vulcanizable Gold has been introduced to the profession, and the great improvement now made gives it great superiority over all other manufactures now before the public for the following reasons:

First—It is heavier than any other manufacture in the market.

Second—It is absolutely pure gold, 1000 fine.

Third—It is more easily applied, on account of its flexibility and cohesive qualities.

Fourth—It is so thoroughly incorporated with the rubber in the plate that it is part of the plate itself, and will not peel or wear off.

Fifth—It comes out of the vulcanizer thoroughly bright and polished.

Ask your dealer for the

IMPROVED VULCANIZABLE GOLD

AND TAKE NO OTHER.

S. S. WHITE DENTAL M'F'G CO.,

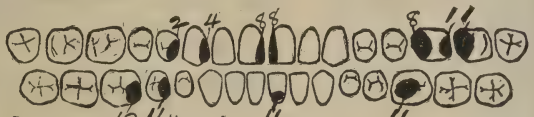
SOLE AGENTS.

1-5-AN-1.

THE DIAGRAM
APPOINTMENT BOOK
And DIARY.

SOMETHING NEW.
SOMETHING DESIRABLE.

The "Diagram" Appointment Book and Pocket Diary is a new book suggested by practical dentists, and meets the wants of the profession. The "Diagram" Appointment Book is 6¾ x 4¼ inches. In the front it has calendars for 1886, 1887, 1888 and 1889, and a table to show the number of days from any day in one month to the same day in any other month. The new feature of the book combines with an appointment book a DIAGRAM for registering the work to be done, or to make memorandum of the work when finished, by having a diagram for each day, and the diagram in such shape as to be efficient and yet not make the book bulky and unhandy. There are one week's appointments on two opposite pages, and, therefore, six diagrams on same space. In the back of book are the pages for memoranda.



TUESDAY.
2. Mo. 10

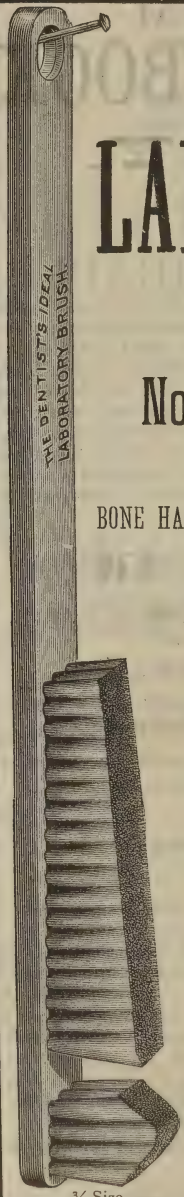
8	Miss Frailey	1	P. W. Peck
9		2	Edgar Thomas
10	Bertie Doak	3	
11	Mrs Harmon	4	Paul Ross
12		5	

The above is a facsimile of one day's work in the "Diagram Appointment Book;" the appointments are made as usual, and the fillings are accurately noted on the diagram. No ledger or other memorandum is necessary for immediate use; at leisure the work may be copied into the large ledger, if desired. After each persons name a note may be made of the amount charged or paid. It will be seen that it is easy to keep a record on this diagram of the work of this day, or of any day, by letting the hour of appointment stand for that person in the diagram; thus the figures 8 in the diagram stand for Miss Frailey, the 8 o'clock appointment.

There can be no disappointment in the paper, ruling, printing or binding, as they are all first-class in every particular.

PRICE 50 CENTS. TRADE SUPPLIED.

WELCH, DENTAL CO., Publishers.



¾ Size.

THE DENTIST'S IDEAL

LABORATORY BRUSH

PATENTED.

No Predecessors and No Rivals!

BONE HANDLE. IVORY FINISH. PURE BRISTLES. EXTRA STIFF.

POINTS:

The tuft of stiffest unbleached Okatka Bristles is made FOR WORK, and will thoroughly cleanse any cavity.

The clearing space removes the old trouble of breaking down of bristles.

The face of the Brush cut on an angle brings the greatest length where there is the greatest wear.

NO BRUSH MADE CAN EQUAL IT!

NO TAMPICO!

POPULAR PRICES.

35 Cts. Each. Three for $1.00

Elegantly put up in Single Boxes.

Florence Manufacturing Co.,

FLORENCE, MASS.

COMPOSITION SILVER STRIPS.

(PATENT APPLIED FOR.)

Invention of Dr. E. Parmly Brown.

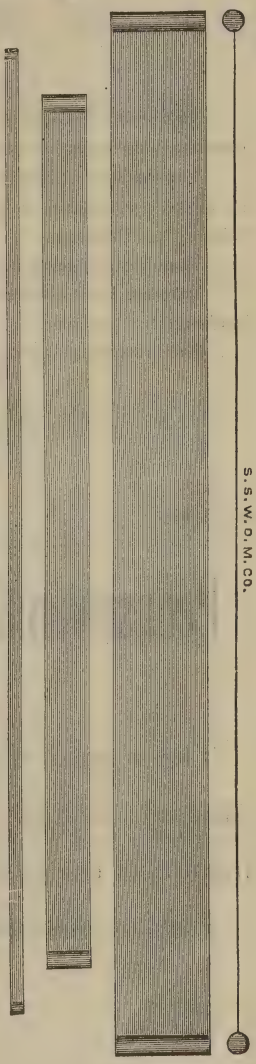
For dentists' use in polishing between the teeth and dressing approximal gold fillings.

To be used with wet pulverized pumice, or other suitable powder.

Can be smoothed out, after being used, by being drawn between the folds of a towel or over the edge of a table.

Put up in packages of one dozen, in a variety of sizes.

Price, ... per package, 50 cents.

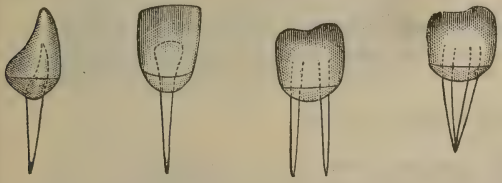


S. S. W. D. M. CO.

DR. E. PARMLY BROWN'S TOOTH CROWNS.

PATENT APPLIED FOR.

FIG. 1. FIG. 2. FIG. 3. FIG. 4.



These cuts represent position and shape of pins in the tooth.

For full description, see *Dental Cosmos*, September, 1886, pages 583, 588 and 589.

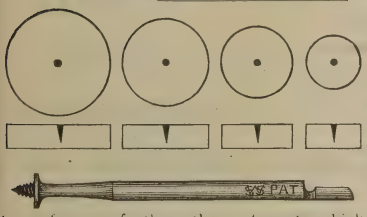
PRICES,

Brown's Tooth Crowns, . . . each 65 cents.

SOLD BY WELCH DENTAL CO.

MOOSE-HIDE POINTS FOR DENTAL ENGINE.

For Carrying Pumice or other Powders to Clean Teeth or Polish Fillings.



Designed and introduced by Dr. E. Parmly Brown, who claims that these Moose-hide Points are more efficient than any other engine polisher heretofore offered to the profession. A moment's use when wet causes them to conform perfectly to the surfaces to which they are applied, when they become like a brush, passing readily between the teeth to the point of close contact. Their extreme toughness gives them a firm hold on the mandrel. They can be used on any screw mandrel, but a medium sized screw and a medium length of mandrel as shown in cut are recommended by Dr. Brown as most satisfactory. A thimbleful of pumice-powder should be mixed with water in a small dish, and into this the Point should be dipped from time to time. A fresh Point should, of course, be used for every case.

Put up in boxes containing thirty Points, assorted sizes.

Price, ... per box, 50 cents.

No Dental office should be without

DR. BROWN'S UNIVERSAL SCREW CLAMP,

(CLAMP AND KEY, Nickel-Plated, $4.00.)

His *Depressed Dental Rubber Dam* is now being manufactured thin, and of the very best quality of Rubber, put up in boxes of twenty,

ONE DOLLAR PER BOX.

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ESTABLISHED 1845.

The Forty-Second Annual Winter Session begins October 4, 1887, and continues through five months.

The Faculty is composed of Dentists in practice, and every effort is made to make the course of instruction a thorough one in all branches strictly relating to Dentistry.

This Institution is the only Dental School in a city of 300,000 inhabitants.

Through its infirmaries, it therefore offers the best advantages in training students for practice.

For information and announcement, address

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Minnesota Hospital College Dental Department.

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Matriculation	$ 5.00
Tickets for the Regular Course	50.00
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7-7-AN-1

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1886-87.

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Letters of inquiry should be addressed to

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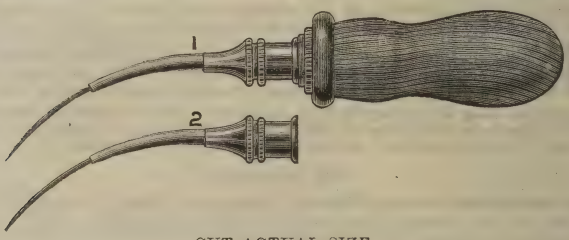

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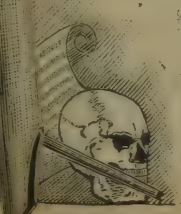

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Table of Contents—July.

ORIGINAL COMMUNICATIONS:

Contributions to the History of Devel pment of the Teeth. Carl Heitzmann and C. F. W. Bodecker 337

Alveolar Abscess. Geo. A. Maxfield 349

REPORTS OF SOCIETY MEETINGS:

Illinois State Dental Society 363

EDITORIAL:

The A. D. A. Meeting for 1887 377

The Washington Meeting 384

Implantation 385

Bibliographical 386

CURRENT NEWS AND OPINION 386

Index to Advertisements.

Horsford's Acid Phosphate	Cover	Page 2	
Charles H. Phillips Chem. Co	"	2	
Dr. Robert S. Ivy	"	2	
Underwood Spring Water	"	3	
R. S. Williams	"	4	
Listerine	Adv.	Page 1	
A Sensitive Point	"	2	
Munn's Patents	"	2	
Detroit and Cleveland Nav. Co.	"	2	
The Medical Register	"	2	
Seabury & Johnson	"	3	
Claudius Ash & Sons	"	4 & 5	
Acme Gold Foil	"	6	
American Dental Manuf. Co	"	7	
Caulk's Filling Materials	"	8 & 9	
Murdock's Liquid Food Co	"	10	
Edward Rowan & Co	"	11	
C. A. Timme & Co	"	12 & 13	
Hardman's Amalgams	"	14	
Dibble's White Amalgam	"	14	
E. Kearsing	"	15	
Lawrence's Amalgam	"	15	
Wilmington Dental Mf'g Co	"	16	
Gasoline Furnace	"	17	
Daly Gold Lining Dental Co	Adv.	Page 18	
New York Dental Manuf'g Co	"	19	
S. S. White Dental Manuf'g Co	"	20–25	
I. W. Lyon	"	26 & 27	
Akron Dental Rubber	"	28	
Parson's Eureka Alloy	"	29	
Cherry Malt Phosphites	"	29	
J. H. Smith's Cements	"	30	
To Inventors	"	30	
Parke, Davis & Co	"	31	
A. J Nickolds	"	31	
Vulcanizable Gold	"	32	
Welch Dental Co	"	33	
Laboratory Brush	"	34	
Dr. Brown's Univ. Screw Clamp	"	35	
Ohio College of Dental Surgery	"	36	
Penn. College of Dental Surgery	"	36	
Minnesota Hospital College	"	37	
New York College of Dentistry	"	38	
Philadelphia Dental College	"	39	
Chicago College of Dent. Surg'y	"	40 & 41	
Dental Review	"	42	
Dunn's Medical Syringe	"	42	

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VOL. VIII. JULY, 1887. NO. 7.

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CONTRIBUTIONS TO THE HISTORY OF DEVELOPMENT OF THE TEETH.

BY CARL HEITZMANN, M. D., AND C. F. W. BÖDECKER, D. D. S., M. D. S.

CONTINUED FROM PAGE 290.

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To prepare microscopical specimens of embryonal jaws for researches in the history of the development of the teeth, the jaw-bones (preferably the lower) are excised from the fœtus, care being exercised not to squeeze the specimen, and placed in a one-half of one per cent. solution of chromic acid. The liquid must be changed every third or fourth day, until the hard tissues, by the removal of the lime-salts, are sufficiently soft for cutting with a razor. All trials to determine the degree of softness of such a specimen must be made by means of a needle, and not with the fingers. The epithelial structures are especially liable to be crushed, unless handled with the utmost care. The greatest obstacle to obtaining perfect specimens is caused by the fact that the enamel organ is withdrawn from the dentinal cap, and the epithelia from the connective tis-

sue structures, a cavity being thus formed whose walls offer no resistance to the cutting instruments, and are thus easily detached from their normal position.

After having tried different methods of imbedding, the writers came to the conclusion that the best material for this purpose is celloidine, softened in absolute alcohol, and dissolved in sulphuric ether. The specimen, previous to imbedding, must be dehydrated by immersion in absolute alcohol for twenty-four hours. After this, it is kept in a mixture of equal parts of sulphuric ether and absolute alcohol about twenty-four hours longer, when it is placed in a rather thin solution of celloidine for about two days, after which it is ready for mounting upon a cork. When such a specimen is cut, it will usually be found that the spaces between the dentine and enamel, which are due to the shrinkage of the myxomatous tissue of the enamel organ, are filled with celloidine. If, however, it is found upon cutting that such a space has not been completely filled, a very thin solution of celloidine may be poured into it. A section cutter is of great advantage, since a large number of uniform and thin specimens can be obtained in a comparatively short space of time. That made by Toma of Heidelberg, is especially to be commended. The writers would consider glycerine far superior to Canada balsam as a mounting medium, the tissues presenting a more distinct appearance. If high powers of the microscope are to be employed, only glycerine-mounted specimens will give satisfactory results.

Dentine, as is universally admitted, is strictly an offspring of connective tissue produced by the papilla, which is a formation of embryonal tissue, crowded with medullary corpuscles. (See Fig. 1, page 227.)

It begins to appear about the end of the second and beginning of the third month of intra-uterine life, at a time when the extremity of the epithelial cord has begun to flatten and assume a cup shape. The cavity of this cup is filled with the papilla (Fig. 1, P.) which sends prolongations along the outer wall of the cup, the future sack of the tooth. The more this is deepened and widened, the larger will be the papilla. If the cup of the enamel organ shows depressions corresponding to a bicuspid or molar tooth, we will find corresponding elevations upon the papilla extending into them.

The papilla is originally supplied with but few capillary blood vessels. With advancing growth, however, the vascular supply becomes greater, especially in its peripheral portions, where a delicate fibrous connective tissue is developed—the so-called tooth sack. In the seventh month of fœtal life, we observe a perfect vascular apparatus traversing the papilla, consisting of arteries, veins and capillaries. If examined with low powers of the microscope the papilla appears to be composed of small, globular, highly refracting corpuscles, between which is seen a scanty basis-substance. With high powers of the microscope, we observe globular or oblong corpuscles of small size, which are either compact and homogeneous, or possessed of a distinct reticular structure in their interior. Between small groups of such medullary corpuscles, spindle-shaped tracts appear, corresponding to the boundaries of the future territories of the myxomatous tissue, the reticulum of which in the human subject is always incomplete, never attaining the degree of development seen in the enamel organ. The largest medullary corpuscles are observed in the middle of territories surrounded by a certain amount of basis-substance. Both these corpuscles and the basis-substance have a distinct reticular structure. (Fig. 12.)

Fig. 12. *Medullary tissue of the papilla of a human embryo of four months.*

The small shining medullary corpuscles form clusters, around which we observe an irregularly developed myxomatous network. Magnified 1,200 diam.

The more the papilla increases in size and advances in development, the less frequent are the homogeneous and small medullary corpuscles, while the granular corpuscles are larger, each being surrounded by a small amount of basis-substance. Along the periphery of the papilla, however, there is invariably present a narrow zone in which the medullary corpuscles are more numerous and more shining than in the rest of the papilla. In the fifth month

the outermost periphery of the papilla is frequently found to be composed of a hyaline rim, beneath which is a narrow zone of medullary corpuscles. The hyaline rim corresponds to the so-called structureless layer, or basement membrane so often seen between epithelial and connective tissue formations. When the enamel organ is detached from the papilla, and this is, as above mentioned, very frequently the case, the outer surface of the basement membrane appears beset with an extremely delicate fringe, evidently the torn connection between the papilla and the adjacent enamel organ, or the ameloblasts. High powers of the microscope reveal in the apparently structureless layer a faint reticular formation, and marks of a division into medullary corpuscles. (See Fig. 7, p. 282.)

At the beginning of the fifth month, we usually find the first traces of peculiar, elongated corpuscles along the periphery of the papilla, which are known as odontoblasts. These formations are oblong, pear, club, or spindle-shaped, arising from the coalescence of a number of medullary corpuscles, including that portion which has been previously transformed into basis-substance. The odontoblasts are sometimes seen directly beneath an already formed layer of not yet calcified dentine. The latter, in this situation, is sufficiently characterized by the presence of delicate branching dentinal canaliculi, holding the slender dentinal (Tomes) fibers. We often observe these fibers to be in direct connection with adjacent odontoblasts. If an odontoblast terminates in a sharp point, one offshoot is seen to arise from the point directly connected with a dentinal fiber. If an odontoblast has a broad basis, two or more offshoots may arise from it and run, in the shape of dentinal fibers, into the adjacent dentinal canaliculi. It may also happen that an offshoot of an odontoblast takes another direction, and instead of passing into a dentinal canaliculus, runs parallel with the border of the already formed dentine. Fully developed odontoblasts are not often seen in direct union with dentine, and this is especially true along the lateral portions of the dentinal cap. It is far more common that between the odontoblasts and the dentine medullary corpuscles are present, and the offshoots of the odontoblasts run between these medullary corpuscles in order to reach their respective dentinal canaliculi. Fully developed odontoblasts are rarely seen at the apex of the papilla. Medullary corpuscles alone are usually present in this locality, or they are interposed between the

odontoblasts and dentine. Not infrequently we observe layers in the forming dentine, which are represented in Fig. 13.

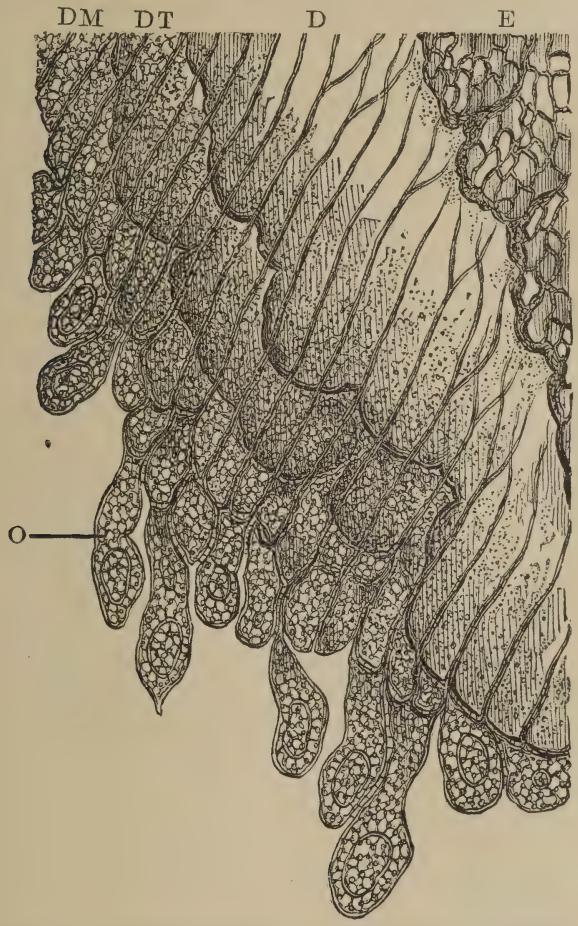

Fig. 13. *First formed dentine of a human fœtus of six months.*

D. Calcified layer of dentine with marked globular territories.
DT. Dentine composed of a non-calcified basis-substance, likewise globular.
DM. Row of medullary corpuscles before the formation of basis-substance.
O. Odontoblasts, the offshoots of which run between the medullary corpuscles into the dentinal canaliculi.
E. Enamel.

Magnified 1,200 diam.

The odontoblasts have arisen from the fusion of a number of medullary corpuscles, and are present where, at the time, the for-

mation of dentine is not actively in progress. Whenever this is the case, the odontoblasts break up into medullary corpuscles, which are directly transformed into the basis-substance of the dentine. The offshoots of the odontoblasts, which are seen to run directly into the dentinal canaliculi, will appear between the medullary corpuscles as soon as the odontoblasts split up into such corpuscles. The offshoots are formations of living matter seen to emanate from a compact layer at the base and the borders of the odontoblasts. The dentinal fibers remain in situation after the formation of medullary corpuscles, or they are newly formed between the medullary corpuscles, as soon as the dentinal canaliculi are formed. The odontoblasts are not direct dentine formers, but provisional formations, from which arise the medullary corpuscles, and these are changed into the basis-substance of the dentine. Odontoblasts, therefore, the same as ameloblasts, are provisional formations, and dentine, as well as enamel, originates from medullary corpuscles in the same manner in which all forms of connective tissue are known to arise.

It is the rule that the medullary corpuscles are at first transformed into a basis-substance, which is as yet destitute of lime-salts. In specimens stained with carmine, this zone of non-calcified dentine assumes a bright red color, in contradistinction to the calcified portion, which either remains unstained or assumes a greenish tint by the reduction of the chromic acid. Another distinction between the non-calcified and the calcified basis-substance is that the latter has a markedly higher degree of refraction than the former. When we examine such a specimen with high powers of the microscope, we at once become convinced of the identity of the structure of both the non-calcified and the calcified dentine. (See Fig. 5.) We observe a markedly reticular structure in both, and in many instances fine filaments, emanating from the dentinal fibers, are seen to penetrate the reticulum.

At the periphery of the dentine, the bifurcations of the dentinal canaliculi and their tenants are always plainly marked. This feature obviously arises from an aggregation of smaller medullary corpuscles than those appearing at a later period of development. At the same time, the reticulum in the basis-substance is more delicate in the region of the bifurcations, and consequently the meshes of the basis-substance appear narrower in the first-formed dentine than

in that which is formed at a later period. We sometimes observe transverse sections of dentine in connection with longitudinal ones, which are of great interest. (See Fig. 14, DC.) Here it is seen that

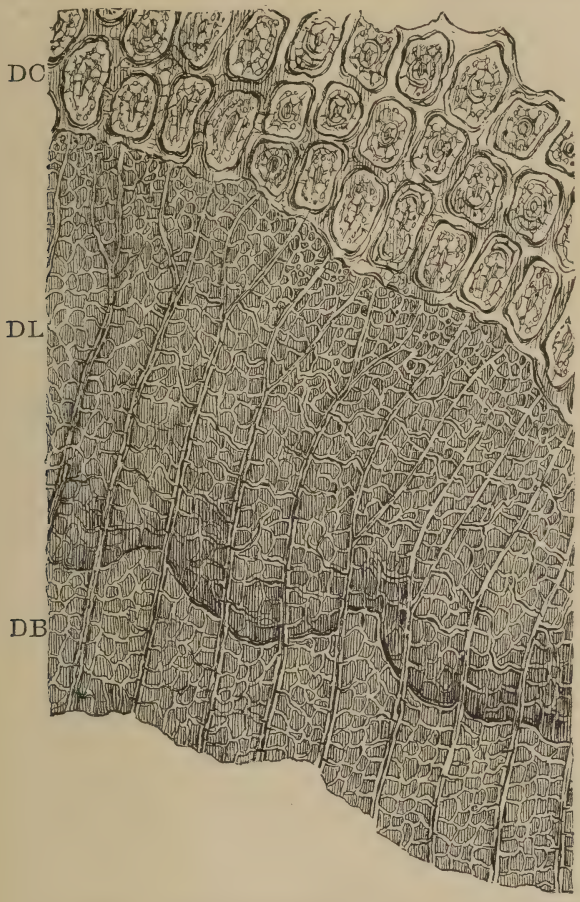

FIG. 14. *First formed dentine of the molar tooth of a human fœtus of six months.*

DB. Basis-substance of non-calcified dentine.
DL. Basis-substance of calcified dentine, both in longitudinal section.
DC. Calcified dentine in cross section.

Magnified 1,200 diam.

the calcification first starts at the periphery of the fields farthest from the dentinal canaliculi. Thus a comparatively coarse net-work of calcified basis-substance is established, in the meshes of which

we observe either an uncalcified basis-substance, or unchanged protoplasm, whereas the central portions of the meshes are occupied by the dentinal fibers in transverse or oblique section. The latter appear larger in inverse ratio to the amount of calcareous matter that has been deposited. From their periphery arise the spokes also seen in fully developed dentine which traverse a light rim—the future canaliculus. The border of the canaliculus is often marked by a circular or crescentic formation, possibly the future rim of elastic substance of the dentinal canaliculi.

The line of the non-calcified basis-substance forming the boundary toward the medullary corpuscles, is found to be either straight, stair-like, or slightly wavy. This feature is never observed close to the periphery of the dentine, but always some distance away from it. These wavy contours unquestionably correspond to the globular territories of which the basis-substance is composed. Previous researches on dissolution of the dentine of temporary teeth, in caries and in the process of eburnitis, especially in the latter, have strongly pointed toward the presence of globular territories in the dentine, the same as in bone tissue. The history of development corroborates the presence of such territories, since they are of very common occurrence in developing dentine of man, as well as of different animals. Their origin is explained in a grouping together of a certain number of medullary corpuscles previous to their transformation into basis-substance. Each globular territory is pierced by a number of dentinal canaliculi, without the least interruption in their course. The writers desire to lay special stress upon the fact that such territories become conspicuous only after calcification of the basis-substance has taken place. Under the theory that the odontoblasts are directly transformed into dentine, the formation of globular territories was inexplicable. In morbid processes, we observe the globular territories of the dentine breaking up into a number of medullary corpuscles. The history of development teaches us that each territory arises from a number of smaller corpuscles. Thus the formation, dissolution, inflammation and reformation of dentine becomes plain.

Since Czermark has drawn attention to uncalcified fields in the dentine of many teeth, and called them "interglobular spaces," a great deal of speculation has been indulged in to explain this occurrence. Such spaces are never present, as far as the writers have

observed, close to the periphery of the dentine, but are always found some distance from the bifurcations of the dentinal canali-

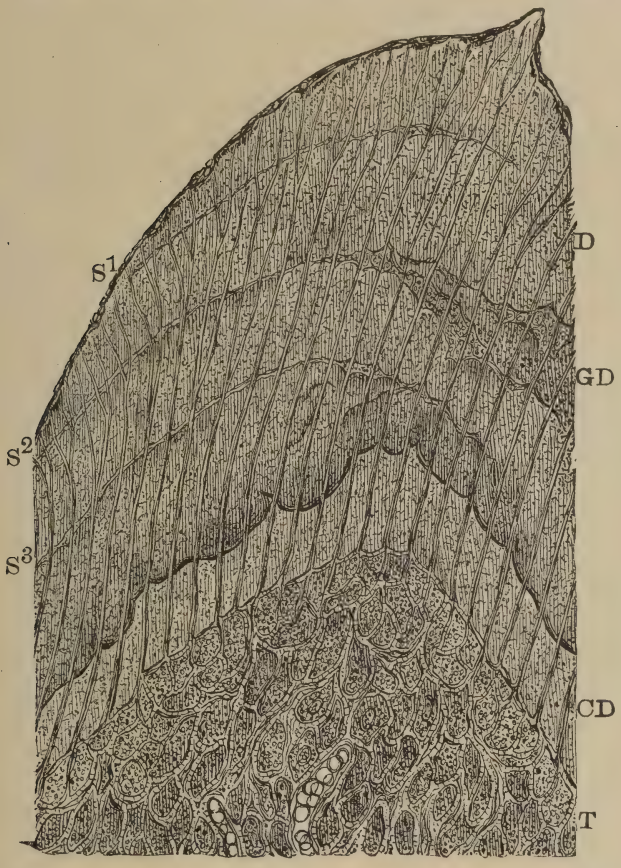

Fig. 15. *Anomalous formation of dentine from a human fœtus of six months.*

T. Papilla of the tooth, with a few blood-vessels, and no odontoblasts. The medullary corpuscles close below the dentine, are arranged in groups, corresponding to the future territories of the dentine.
CD. Non-calcified basis-substance of the dentine.
D. Calcified dentine.
S. 1, 2 and 3. Stratifications of the dentine.
GD. Badly calcified basis-substance of the dentine, in connection with
S2. Composed of globular territories.

Magnified 500 diam.

culi, and sometimes are scattered throughout the dentine. These spaces are filled with a non-calcified basis-substance, or with med-

ullary corpuscles which have not been transformed into basis-substance. The writers often observed within these spaces irregular globular territories, invariably marked by the contours of such territories, but without ever causing a deviation of the course of the dentinal canaliculi.

The origin of such interglobular spaces is traceable to the earliest stages of the formation of the dentine. (See Fig. 15.) In exceptional cases even fully developed dentine will appear composed of layers, or faint concentrically arranged marks in the dentine, traversed without interruption by the dentinal canaliculi. Both the stratification and the interglobular spaces are caused by a faulty deposition of lime-salts in the embryonal development of the dentine. Their cause is probably a temporary interruption of deposition of lime-salts, owing to transient ailments of the mother. These rather anomalous formations of dentine again prove that the basis-substance is made up of globular territories, and these again of medullary corpuscles.

The conclusions which the writers have derived from the studies of the history of the development of dentine, are the following:

I. Dentine from the very issue is a formation of connective tissue, first visible in the shape of a knob-like protuberance termed the papilla.

II. The papilla is composed of medullary tissue, holding an irregular myxomatous net-work, originally scanty, but later on freely supplied with arteries, veins and capillaries.

III. Shortly before the formation of dentine—in the fifth month of fœtal life—there appear at the periphery of the papilla elongated corpuscles, resembling epithelia, which are termed odontoblasts. Where the odontoblasts are in contact with an already formed dentine, they send offshoots into the dentinal canaliculi in varying numbers. These offshoots are dentinal fibers.

IV. The odontoblasts are provisional formations of medullary tissue, which never change directly into dentine, and are therefore visible only where no formation of dentine is going on, or at the time of rest.

V. Before dentine is formed, the odontoblasts break up into medullary corpuscles, and the dentinal fibers, before in connection with the odontoblasts, are located between the medullary corpuscles.

VI. The medullary corpuscles are directly transformed into the basis-substance of the dentine, which at first is destitute of lime-salts, but afterward becomes the seat of a deposition of calcareous matter.

VII. The basis-substance of the dentine is composed of globular territories, the origin of which is traceable in groupings of the medullary corpuscles, shortly before the appearance of the basis-substance.

In the fœtus of the cat, the sheep, and the dog, the process of the formation of dentine is the same as in man, in all essential features. The same rule holds good for the history of the development of dentine in swine. In the latter animals, there is a slight discrepancy as compared with man, mainly in the structure of the papilla. (Fig. 16.)

FIG. 16. *Papilla and adjacent dentine of fœtus of a pig.*

P. Myxomatous tissue of the papilla, with irregularly branching corpuscles, and an abundance of myxomatous basis-substance.
CC. Capillaries, partly fully formed, and partly in the process of formation.
O. Layer of odontoblasts.
D. Dentine.

Magnified 500 diam.

The papilla of a pig fœtus is composed of irregular, branching and partly connecting protoplasmic bodies, somewhat resembling the stellate reticulum of the enamel organ. These corpuscles are uniformly distributed in an abundant mass of basis-substance, which, with lower powers of the microscope, appears finely granular. High powers, however, reveal the delicate network essential to all the varieties of a myxomatous basis substance. This tissue is traversed by a moderate number of blood-vessels, mainly capillaries, which showed in some places stages of development, from the original solid cords of protoplasm to the vacuolization and appearance of endothelia upon their walls.

Toward the periphery of the papilla, spindle-shaped bodies make their appearance, evidently arising (at least to a great extent) from the living matter previously hidden in the myxomatous basis-substance. By an increase in size of one, or the confluence of several such spindle-shaped corpuscles, the odontoblasts arise, and they are often seen in contact with the already formed dentine. Close study of specimens has satisfied the writers that the odontoblasts do not directly form the basis-substance of the dentine, but are merely transitional formations, here, as well as in men, and other animals.

FIG. 17. *Odontoblasts, with adjacent dentine from the fœtus of a pig.*

O. Odontoblasts.
D. Dentine.

Magnified 1,200 diam.

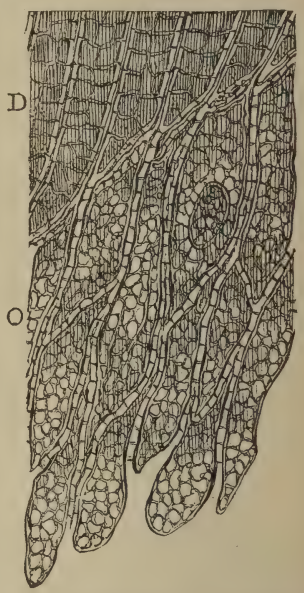

FIG. 18. *Odontoblasts, with adjacent dentine, from the fœtus of a pig.*

O. Odontoblasts.
D. Dentine.

Magnified 1,200 diam.

In the condition of rest, the odontoblasts offer an excellent opportunity to study their relation to the dentine. If they lie against the dentine with a broad basis, four or five offshoots (as represented in Fig. 17) may be seen to enter the adjacent canaliculi, all of which arise from one odontoblast. If, on the contrary, the odontoblasts terminate toward the dentine in a point, a single dentinal fiber will spring therefrom, as represented in Fig. 18. It may also happen

that a single odontoblast exhibits no offshoots, in which instance we observe, between the base of the odontoblast and the dentine, delicate filaments which run along the border of the dentine, and from which arise the dentinal fibers. The opposite ends of the odontoblasts terminate in a pointed way, likewise elongated into delicate fibers. These fibers, as well as the lateral portions of the odontoblasts, are inter-connected with all their neighbors by means of delicate thorny offshoots.

ALVEOLAR ABSCESS.

GROWTH, DEVELOPMENT AND TREATMENT.

READ BEFORE THE VERMONT STATE DENTAL SOCIETY AT THE ANNUAL MEETING, HELD IN BURLINGTON, VT., MARCH 17, 1887.

BY GEO. A. MAXFIELD, D. D. S., HOLYOKE, MASS.

The word Abscess is defined as a collection of pus in an abnormal cavity, the result of a morbid process. When found at the root of a tooth, having commenced at the apex, it is called an Alveolar Abscess ;* the acute inflammation of the pericementum being the morbid cause by which it is induced.

Acute pericementitis proceeds from direct local irritation, and this arises, with but few exceptions, from one of two causes—an inflamed pulp, or a dead pulp.

Acute pericementitis may or may not be induced by an inflamed pulp ; it cannot be induced by a dead pulp until air has been admitted to the pulp chamber.

The theory that a dead pulp always putrefies, decomposing into gaseous elements which cause pressure upon the parts about the foramen, producing an irritation from which pericementitis and abscess result, is an erroneous one. That putrefaction of the dead pulp often, and I might almost say always, produces acute

* It is well known that abscesses occur on other parts of the root than the apex, but the originating causes being different from those of Alveolar Abscess, I do not consider them in this paper.

pericementitis, I firmly believe, but putrefaction of a dead pulp cannot occur till there has been exposure to the atmosphere.

"From the experiments of noted scientists, especially that of Pasteur, it is shown that putrefaction is not occasioned by the chemical action of oxygen or any other gas, but is a species of fermentation, analogous to that of sugar under the influence of a growing yeast-plant, being brought about by a development of microscopic organisms, the germs of which, from their extreme minuteness, float in abundance in the air as constituents of its dust."* Therefore, when there is an abscess at the apex of the root of a tooth, where the pulp chamber is a closed cavity so that air is unable to penetrate, the inflammation of the pericementum must have been induced by the inflamed pulp, and the death of the pulp is the result of the pericementitis and not the cause of it. A pulp may be inflamed and die, and yet not exert any deleterious influence upon the pericementum, and a tooth with a dead pulp may remain in a healthy condition for years, or even through life. Again, an inflamed pulp may induce a chronic or sub-acute pericementitis, causing the death of the pulp, and the tooth may remain in this condition, that is, with a dead pulp and with chronic pericementitis, for years and no abscess result.

The causes of an inflamed pulp I will not attempt to consider in this paper. They are apparent to every observing practitioner. But just here it will be useful briefly to consider the anatomical structure of the pericemental membrane ; it is undoubtedly a continuance of the periosteum that everywhere covers bone, except where covered with cartilage, with the exception that in the tooth socket there is some difference in its structure, as it has additional functions to perform ; it is of a double surface, that is, it has to supply nutriment from both sides, to the bone and to the tooth ; it also has to serve as a cushion for the tooth, enabling it to resist the blows of mastication. It is a dense, fibrous membrane, richly supplied with blood vessels and nerves, and is much thicker at the apex of the root.

It is supplied with blood at the apex from the artery that supplies the pulp, and these arteries anastomose freely with the arteries in the alveolus that supply the gums, also with the arteries in the periosteum at the borders of the socket. The nerves also proceed from

* Holmes' Surgery, vol. 3, page 375.

the same sources as the blood supply, or more largely from the periosteum at the borders of the socket, and in this membrane that the nerves of touch for the tooth are located.

Another question to consider at this point is, what are the causes of suppuration? One of the most important questions before the scientific world to-day is, "can there be suppuration without the presence of micro-organisms?"* For many years it has been conceded that bacteria is one cause of suppuration, but within the past year it has been demonstrated, through rigorous experiments by some of the leading investigators, that there is no suppuration whatever without the action of living bacteria. In the *Medical Record* of Dec. 25, 1866, Dr. H. Knapp, of New York, published a valuable paper on "Fermentation, Putrefaction and Suppuration," in which he gives the various experiments with the results obtained, which were entered upon to determine the above question, and from this paper I will quote at some length. He says: "the same species of bacteria will produce suppuration as well as putrefaction. The pyogenic fungi will, for instance, curdle and decompose milk, and from putrefying substances bacteria are obtained that have a strong pyogenic action. Suppurating substances are of the same nature as the putrescible. The difference only is, that suppuration has relation to living, putrefaction to dead, substances or tissues. Both are split into simpler and analogous compounds."

He studies this subject under the following heads, "Does traumatism of any kind produce suppuration? Do foreign bodies occasion a formation of pus? Are there any kinds of chemical agents that cause suppuration?" In answer to the first question, he says, "I performed all the operations that are practiced on the eye, on the one side of a rabbit with sterilized instruments in an aseptic way; on the other side the wound was contaminated with an emulsion of a pure culture of some pyogenic fungus. All the former healed by first intention, the latter suppurated with the regularity of a chemical experiment. One of the fundamental observations that led to the introduction of antiseptic surgery, was the fact that simple fractures heal without suppuration, but there is an occasional exception to this rule. In the exceptional cases of suppuration after a simple fracture, a focus of suppuration somewhere else in the body has either been discovered, or its presence

* Editorial in Independent Practitioner for February, 1887.

can be assumed with certainty ; the experimental proof of this fact has been furnished of late by Beeker and F. Krause, who observed that simple fractures in healthy animals regularly healed by first intention, but just as regularly suppurated when pyogenic microbes were injected into a vein of the ear, and he says, "this galaxy of facts furnishes indisputable evidence that mere traumatism of whatever kind can never cause suppuration.

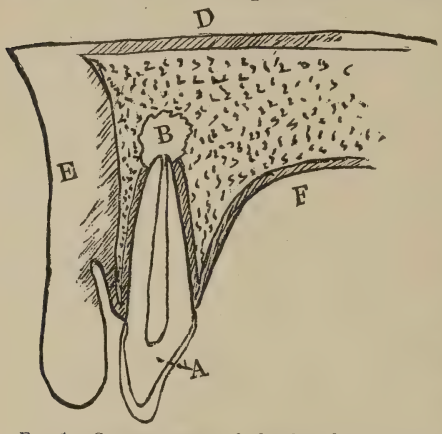

FIG. 1 —*Commencement of alveolar abscess.*

A—Superior incisor tooth. B—Abscess cavity in the bone. E—Lip. F—Hard palate. D—Floor of the nostril.

As to the second question, Do foreign bodies, as such, cause suppuration ? he says, "Theo. Leber, and others, have experimentally studied and brought it to a certain final solution. Leber states that indifferent non-oxidizable foreign bodies aseptically introduced into the tissues or cavities of the human body caused no inflammation, in particular no suppuration. I have introduced a number of foreign bodies, for instance, pieces of a hair-pin, aseptically into the anterior chamber of the right eye of a rabbit. The hair-pin was old, rusty and dirty. It was not cleansed, but before its introduction it was brought to a glow. A small piece of the periphery of the cornea was cauterized with a glowing strabismus hook, pierced with a sterilized small knife ; the pin was introduced with an aseptic little forceps, pushed more deeply into the anterior chamber and the wound canal again sealed with the glowing hook. The foreign bodies caused no suppuration ; they either lay free on the iris or were surrounded with a delicate, apparently fibrous exudation. A similar piece of the same hair-pin had been brought to a glow and introduced in the same way into the other eye, with the only difference, that before the introduction it had been dipped into an emulsion of *staphylococcus pyogenes albus*, with the result, that the most violent phlegmon broke out in this eye within the first twenty-four hours, and destroyed the globe completely.

As to the third question—Do chemical agents cause suppuration without the intervention of microbes?—he says: "This question has been answered positively by all but a few recent investigators. Baumgarten, Theo. Leber, Uskoff, Orthmann, Councilmann, Rosenbach, Passet and others, assert, having convinced themselves, that suppuration is caused by certain chemical agents, for instance, mercury, oil of cantharides, petroleum, turpentine, and above all, croton oil, even if aseptically introduced. Four recent observers, however, contest this assertion on the strength of new and more rigorous experiments. The leading investigator of the four is J. Straus, who has, for the first time, used a perfect aseptic method. A sterilized glass tube, tapering to a point, on one side was closed with a sterilized cotton plug, and the other filled with sterilized croton oil, and the point sealed up. He sterilized the skin of the animal by singeing it with Paquelin's cautery, stabbed it with a sterilized knife, introduced the thin end of the tube, broke off its point, through the cotton plug blew the oil out into the sub-cutaneous tissue, withdrew the tube and sealed the wound-canal by burning its orifice with the cautery. Among eighteen injections of turpentine, thirteen did not produce suppuration; of five injections of croton oil, none suppurated; of two injections of mercury, none suppurated. When suppuration ensued he found cocci in the pus.

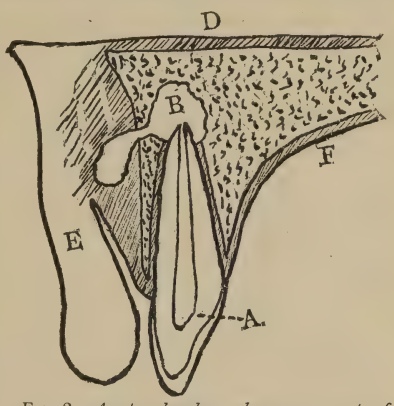

FIG. 2.—*Acute alveolar abscess on root of superior incisor, pointing on the gum.*

A—Tooth. B—Abscess cavity in the bone. E—Lip. D—Floor of the nostril. F—Hard palate.

E. Scheuerlen, of Berlin, in his experiments used small glass tubes, sterilized for half an hour in a Koch steam sterilizer, then by means of a canula needle and a small piston thrust under the skin of rabbits. Before the operation the skin was carefully shorn and disinfected with a one to one thousand corrosive sublimate solution, and after the introduction the little tube lay in the sub-cutaneous tissue, about ten millimeters distant from the puncture of the skin. The region of the puncture was covered with a

thick layer of iodoform collodium. He used a dozen irritating substances in the tubes, among them turpentine and croton oil. A week or ten days after the introduction of the little tubes, when they lay free from irritation under the skin, and the small wound was perfectly healed, they were broken. A hard swelling occurred around them, but suppuration in only one of his thirty-two experiments (croton oil), in which a puriform exudation extended from the skin all along the stab-wound. In this case the sterilization and healing had been imperfect, and bacteria, which were found in the purulent exudation, must have penetrated into the wound. Two others, Klemperer and Dr. J. A. Rugs, made similar experiments with like results, and the conclusion they all reached from their experiments was that bacteria are the cause of every suppuration."

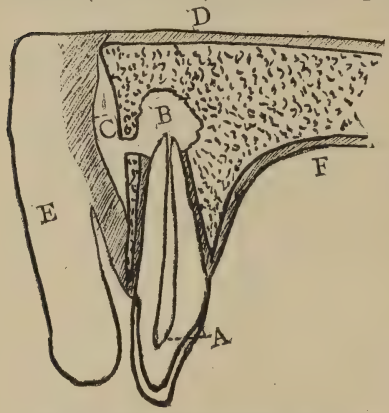

FIG. 3.—*Acute alveolar abscess with pocket of pus between the periosteum and bone.*

B—Abscess cavity in the bone. C—Pus cavity between periosteum and the bone. A—Tooth. E—Lip. F—Hard palate. D—Floor of nostril.

Dr. Knapp experimented in a similar manner, with like results, and in conclusion he says: "They furnish, it seems to me, sufficient evidence of the truth of the proposition, that suppuration in every case depends on the action of microbes. If, on one hand, traumatism of any kind, if foreign bodies, if the most irritant chemical agents, if anything you may imagine is not of itself capable of producing suppuration; if on the other hand, the addition of pyogenic microbes to any irritating substance or wound, or any lesion whatsoever, under proper conditions, produces suppurations without fail, we are certainly justified in ascribing to pyogenic germs the causative action in the formation of pus. What is pus? 'An albuminous, non-coagulable fluid, containing multitudes of leucocytes.' What is suppuration? 'The splitting of living nitrogenous tissue into simpler compounds, through the influence of certain bacteria.' In this way the parallelism of the three processes—fermentation, putrefaction and suppuration—is established."

I have quoted Dr. Knapp's paper at such length, because it sustains

me in the theory I have maintained for some time, that a dead pulp is not of itself the cause of an alveolar abscess. That these abscesses always begin at the apex of the root is not to my mind any proof that the dead pulp is the exciting cause, for at this point the tissue of the pericementum is the thickest, and it is also the center from which radiates its rich plexus of nerves and blood vessels, and because of its bony confinement an irritation is not so easily overcome. We say "the death of the pulp is the result of external violence to the tooth." It is simply one of the results of the inflammation of the pericementum, induced by the shock. Starting, then, with an inflamed pulp in a closed cavity where air has not been able to obtain entrance, the inflammation may extend to the pericementum by the continuity of the parts, the congestion and swelling of the pericemental tissue causing a stricture of the vessels entering the apical foramen of the tooth, and thus literally strangulating the pulp to death.

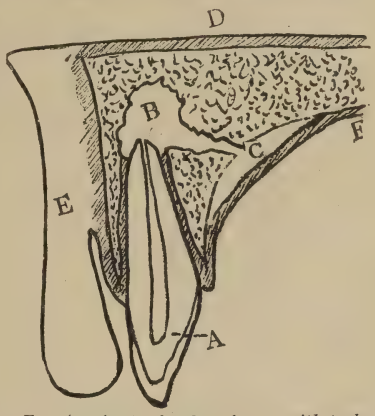

FIG. 4.—*Acute alveolar abscess, with pocket of pus underneath the periosteum of the hard palate.*

B—Abscess cavity in the bone. C—Pus cavity between the periosteum and the bone. A—Tooth. E—Lip. F—Hard palate. D—Floor of the nostril.

According to the stage which the inflammation has now attained, if pyogenic germs are absent, the inflammation may quickly subside and the dead pulp may pass into a semi-fluid condition, or dry down and become, as we say, "mummified." If the inflammation is severe, it may be controlled and its duration shortened by the use of prophylactic and sedative measures. That the inflammation in some of these cases continues to suppuration I do not deny, but I do not believe it is possible until the pyogenic germs have in some manner obtained entrance. Where the inflammation of the pulp occurs as the result of an exposure, the death of the pulp and the entrance of the germs is easily explained. That in these cases an abscess does not always result from the death of the pulp, is easily explained by the supposition that, through some means, the foramen closed up, preventing the entrance of the germs. The death

of the pulp may have been so gradual that inflammation was not excited and the foramen closed with a healthy eschar.

As soon as the germs have obtained entrance to the seat of inflammation at the apex, the tissues rapidly disintegrate and pus begins to form. (See Fig. 1.*) The pain which was severe and steady is now more intense, and accompanied with a throbbing which is characteristic. Inflammation extends over the periosteum while the gum over the tooth also becomes congested and swollen. The pressure of the pus in the pent-up cavity causes more or less absorption of the surrounding bone. It is the universal rule that pus will burrow in the direction of the least resistance, and the external lamina of bone, being more dense and hard than the interior, it often happens that there is considerable destruction of bone about the apex, quite a cavity being thus formed, before an opening is made. The sack that is found adhering to the root when an abscessed root is extracted, is the disorganized tissue. It generally adheres to the root because the surrounding bone, being the softest, it is more easily absorbed than the root. The membrane surrounding the disorganized tissue, forming the sack called the "pyogenic membrane," that was formerly thought to secrete pus, is simply the line of demarkation between the dead and living tissue.

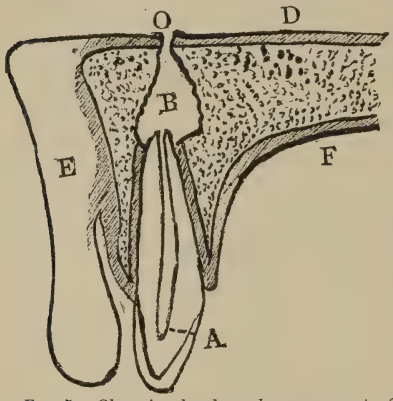

FIG. 5.—*Chronic alveolar abscess on root of superior incisor, with fistula discharging into the nose.*

A—Tooth. B—Abscess cavity in the bone. O—Mouth of fistula. D—Floor of the nostril. E—Lip. F—Hard palate.

As soon as the pus makes an exit through the bone into the soft tissues, the pain begins to abate and the features often become much swollen. (Fig. 2.) As soon as a fistula is formed and an outlet furnished the pus, the pain decreases and the swelling rapidly subsides. Concerning that condition in which the pus, instead of penetrating into the soft tissues, separates the periosteum from the

* I am indebted to the kindness of Dr. W. C. Barrett for the loan of the charts from which these cuts were made, he having used them at Hartford, Conn., June, 1886, to illustrate the same subject in an address before the Conn. Valley Dental Society.

bone and forms a cavity for itself between the two (Figs. 3 and 4.), Dr. G. V. Black,* says: "This is the form of abscess that is most likely to be attended with necrosis of portions of bone, and for this reason should receive prompt attention for the purpose of preventing or limiting this very unfavorable result. This seems to occur mostly in those cases in which the inflammation has run high, and in which there has been or exists at the time of the escape of the pus from the bone a very considerable inflammation of its substance and of its periosteum, by which the layer of osteoblasts have become so softened that they are readily separated from the bone beneath. In this condition of things, the pus in making its escape from the bone, instead of penetrating the overlaying tissues raises the periosteum in the same manner as in sub-periosteal inflammation. In this way separation of the periosteum from the bone over a considerable surface occasionally occurs, and if the parts are suffered to remain in this condition for a considerable time, necrosis more or less extensive will result. If, on the other hand, the pus be promptly discharged, so that the periosteum may be again brought in contact with the parts from which it was separated, not much harm will follow; it will readily become reattached and the parts will heal without difficulty. Separation of the periosteum is to be suspected when the tumor of the gum is broad and comparatively soft. This form of abscess, when left to itself, is prone to discharge at the gingival margin, after having separated the periosteum from the outer wall of the alveolar process. In this condition the only blood supply that this portion of the process can obtain is that which may come from the other side of the tooth, through the anastomosis of the arterial branches in the peridental membrane, already in a more or less inflamed condition, or through

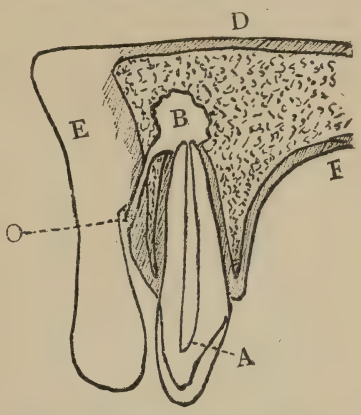

FIG. 6.—*Chronic alveolar abscess on root of superior incisor, with fistula discharging on the gum.*

B—Abscess cavity in the bone. O—Mouth of fistula. A—Tooth. E—Lip. F—Hard palate. D—Floor of the nostril.

* American System of Dentistry, Vol. 1, page 932.

the Haversian canals of the septum of the alveolar process between the teeth. This will at once be seen, in the inflamed condition of the parts, to be a very precarious supply, and as a result of this condition necrosis of the alveolar plates overlaying the root affected and those immediately adjacent, is very liable to occur."

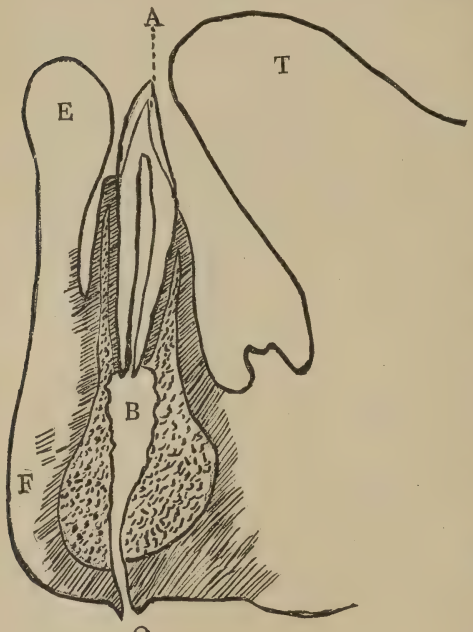

FIG. 7.—*Chronic alveolar abscess on root of inferior incisor, with abscess cavity passing through the body of the bone and discharging on the face, under the chin.*
B—Abscess cavity. O—Mouth of fistula under the chin. A—Tooth. E—Lip. F—Chin. T—Tongue.

When these abscesses occur they are liable to point on the face, and the more so if they occur on the inferior jaw. Occasionally these abscesses discharge through other mucus membranes than those of the mouth; those from the superior molars discharging into the antrum of Highmore; those from the superior incisor tooth into the nose (Fig. 5,) and sometimes burrowing beneath the tissues and discharging behind the soft palate into the throat. Sometimes the pus from an abscess on the superior molars will burrow through the muscles of the cheek and appear just below the malar prominence, or it may burrow along underneath the muscle and appear below the jaw, as if from a lower molar. This is generally the result of the acute form (See Figs. 3 and 4), but may be the result of a chronic abscess.

As soon as an opening is made and the pus discharged, the abscess assumes a chronic form. (Fig. 6.) The cases in which an alveolar abscess heals of its own accord after it discharges are rare, for this reason: "Pus continues to form as long as a dead part remains in contact with a living seat."* The dead pulp in this case

*Garretson's Oral Surgery, page 775.

may contribute towards the continuance of the abscess, though the necrosed bone which is found in most of these cases is a sufficient, and often the only irritant that remains to keep up a constant discharge.

Sometimes the opening closes up permanently, and there remains a small amount of pus and disorganized tissue in the apical space, which forms what is termed a blind abscess. (Fig. 1.). This condition may continue for years, but is liable to have periodic fits of soreness similar to chronic pericementitis. On the inferior jaw, the closing of the fistula in the mouth is very liable to occur, and the pus, simply from the force of gravitation, will burrow in the soft tissues and sometimes through the bone, pointing, perhaps, under the chin and opening another fitsula (Figs. 7 and 8), or perhaps burrowing further down beneath the tissues and appearing on the neck or shoulder.

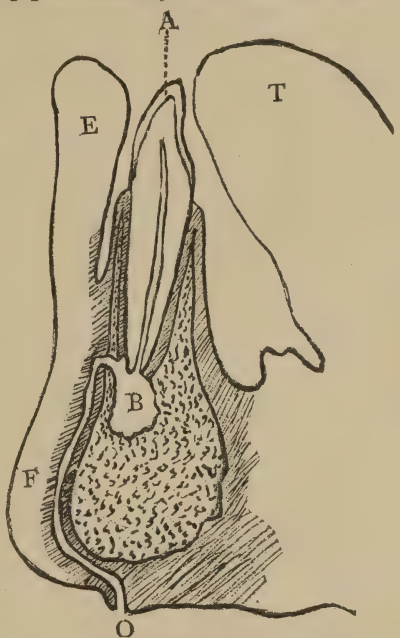

FIG. 8.—*Chronic alveolar abscess on root of inferior incisor, with fistula discharging on face, under the chin.*

B—Abscess cavity in bone. O—Mouth of fistula under the chin. A—Tooth. E—Lip. F—Chin. T - Tongue.

The treatment varies somewhat according to the condition of the abscess. Generally the removal of the irritant and the placing of the parts in an aseptic condition is all that is necessary. If it is not deemed best to attempt to save the tooth, it should be promptly extracted, no matter at what stage it presents itself, and unless there is considerable necrosed bone, the abscess will probably heal at once. I find that the very erroneous opinion prevails among some practitioners that it is unsafe to extract a tooth during the formation and progress of an abscess. As this savors of the age when barbers and blacksmiths were the only dentists, I fail to understand how any intelligent practitioner can harbor such an opinion. The cases

are very rare, however, that extraction of the tooth need be resorted to as a means of cure.

The treatment for the cure of alveolar abscess is very simple. The knowledge of the fact that suppuration is always caused by the presence of bacteria, indicates the line along which it must proceed. First, all broken down and dead tissues must be removed, the parts must be cleansed and made thoroughly aseptic, then such remedies should be used as will incite a healthy action in the parts involved. An acute abscess will not require as much treatment as a chronic abscess, yet the cases are rare where even chronic cases require more that two treatments. In acute cases, if the tooth is not too tender, open at once into the pulp chamber, taking the precaution to have the drill constantly covered with an aseptic fluid—either a solution of iodoform or bichloride of mercury, one to one thousand, will be sufficient. If a superior tooth, and it is quite tender, apply a ligature to the neck and hold the ends in the hand, with considerable tension. This will relieve the pressure on the pericementum caused by the drill. If the foramen is closed, pass a small drill through it, so as to allow free exit of the discharges, first removing all debris from the chamber and canal. Then wash out the canal thoroughly with peroxide of hydrogen; if possible, use a syringe and force the peroxide through the foramen. If the tooth is not too tender, the treatment may be continued and the root filled at that sitting.*

The treatment † is as follows: Continue the use of the peroxide until the bubbling or effervescence ceases; then apply bichloride of mercury, say of a strength of one to one thousand, and force it through the foramen, dry out the canal and fit to it a cone of gutta-percha, trying it in the canal, and so cut that it will come a little short of the foramen. As soon as the cone is ready apply a saturated solution of iodoform in extract of eucalyptol, pumping it well up into the canal and through the foramen; then pump a solution of gutta-percha into the canal, dip the cone into the

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* In these cases I always treat and fill at a single sitting, unless the tooth is too sore to permit the necessary manipulation.

† This treatment is practically the same as that first advocated by Dr. C. T. Stockwell, in a paper read before this society last year. Of sixty-two cases which I have treated in this way the past year, the only failures—that is where the fistula had not healed within three weeks after the operation—were two old chronic cases, one a superior incisor of eight years' standing, the other a first inferior molar of over six years'.

same solution and press it home to the foramen. The remainder of the filling can be finished at any time. If the cleansing has been thoroughly done, the abscess will give no more trouble.

If the tooth is too sore to admit of an opening being made into the pulp chamber, make an opening from the outside through the gum to the apex of the root. This can be done almost painlessly, by the use of cocaine before lancing the gum. A quicker method is to apply a little of the crystal carbolic acid to the gum, and with a lance cut well down to the bone, which must then be pierced with a small drill. Paint well the gums around the affected tooth with a mixture of equal parts of tincture aconite root, tincture iodine, and chloroform,* which will relieve the pain. Dismiss the patient for twenty-four hours, when the soreness will have disappeared and it can then be treated as I have indicated above.

In these cases it is sometimes advisable to prescribe a saline cathartic, also bromide of potassium, say sixty grains in two doses on retiring for the night.

Take particular care in opening up the canals to make the openings sufficiently large that free access to the canals will be secured.

For Chronic Alveolar Abscess: First open up the pulp chamber and canal and thoroughly cleanse. If it is of long standing, there will undoubtedly be some necrosed bone in the apical cavity, which must be removed. Enlarge the fistulous opening, and with an engine bur cut out all the dead bone, wash out the cavity, and then proceed as with an acute abscess, only after applying the eucalyptol pack the canal with cotton saturated with the same, and dismiss the patient for from four to seven days, when the same treatment may be renewed. If there is still considerable pus formed, treat it as before, and let it stand another week before filling.

The cases that require more extensive treatment than this are exceptional ones. For these the treatment must vary according to the complication that presents itself. Occasionally, in acute abscesses we must resort to constitutional as well as local treatment, and these must be met as the symptoms arise. To give them the consideration necessary would unduly lengthen this paper.

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* "According to Waller, who has made very careful experiments, it has been ascertained that alkaloids dissolved in chloroform are readily transferred through the skin into the blood, and produce characteristic phenomena, while alcoholic and aqueous solutions are either not at all, or very slowly absorbed."

Reports of Society Meetings.

ILLINOIS STATE DENTAL SOCIETY.

Reported for the Independent Practitioner by E. E. Cady, D. D. S.

(Continued from page 309.)

WEDNESDAY MORNING SESSION.

A telegram of congratulation and compliment was received from the President of the Northern Ohio Dental Association, and one of a similar nature sent in return.

In view of the distinguished services of Dr. G. V. Black to the entire profession, and to the society in particular, it was unanimously voted that his dues be remitted for life.

Dr. J. A. Swasey, Chairman of the Committee of Dental Art and Invention, mentioned in his report the following recent additions to the operating-room and laboratory: The Knapp blow-pipe; gold lining for rubber-plates; the Shaw dental engine; Dunn's medical syringe; Woolley's root-canal dryer; Melotte's moldine and clamps; McKellop's dental register; Matteson's disk-guide; Ash & Sons' rubber-dam holder; Soloman's incandescent mouth-lamp; Taggart's automatic gas-regulator; Dr. Morrison's regulating appliance; Tibbit's bracket-table; Dr. Swasey's and Dr. Carpenter's rubber-dam clamps; Dr. Reed's and Dr. Bradley's matrices.

Dr. Homer Judd's paper, "Dead teeth in the jaws," was then read, the following being a summary: During the last few years various articles concerning this subject have appeared in the *Medical Record*. Some of these were from the pen of an eye and ear doctor named Sexton, and that of his assistant, Dr. Bartlett. These gentlemen report several cases of otalgia due to dental caries treated by them in the New York Eye and Ear Infirmary, in which report they say: "Among the poor, earache is in many cases due to simple otalgia arising from dental caries." This sage remark, in effect that earache is often due to a pain in the ear, could only have emanated from one who had received a thorough medical education. It is to be regretted, however, that the lesson thus attempted was not presented in a manner to impress those who saw it with the

importance of understanding the intimate relation existing between the teeth and other organs. Much benefit might be derived from these cases had they been studied and reported by one who had some knowledge of medicine, and of what was required in a clinical report, to make it of value to others. Dental practitioners generally are enlightened upon this subject, and recognize the relationship here referred to as thoroughly established.

Dr. Sexton speaks of the "business" of dentistry, and the "work" of the dentist, and adds some senseless twaddle about the ills resulting from the use of artificial teeth. It must be understood, however, that the report here reviewed, and the articles from the pen of the editor of *The Record*, represent in their animus and general tone no phase of the intelligent public opinion of the medical profession.

A great majority of diseases of the teeth, mouth and jaws, have been studied as carefully and are treated by intelligent dentists as successfully as the diseases of any other location are treated by any other specialist, and there is little probability that material change in practice will be brought about, except as we ourselves acquire new facts by study and experiments. Eight cases are reported by the gentlemen referred to, but so little is said regarding treatment or subsequent progress, that we must conclude that the diagnosis was jumped at. The whole lesson taught by the eight cases reported amounts simply to this: People sometimes have earache, and sometimes those troubled with otalgia have also carious teeth in their jaws. In one solitary case reported, it seems probable the earache was dependent upon carious teeth. That otalgia is thus caused may be news to the readers of *The Record*, but those who have followed the dental literature of a few years past know that the teeth are frequently factors in diseases of the ear as well as of the eye and head, and that, on the other hand, toothache may be due to reflex action, having its cause in remote parts, especially the ovaries and uterus. Dr. Bartlett's report, therefore, proves nothing not already well known to the intelligent dentist, and his time would have been no more thrown away had he attempted to prove the value of quinine in intermittent fever. Dr. Sexton's choice of terms is rather primitive. We should expect him to speak of the surgeon's "tools," the chemist's "workshop," or the eye doctor's "kit," as he mentions

the "business" of dentistry, and the dentist's "work." The same gentleman makes many ridiculous statements in discussing the results of the death of the pulp, saying, among other things: "Since the moment the pulp dies, thus cutting off the source of nutrition from the dentine, the part thus nourished must of necessity die also." And again: "It is true that through the periosteum alone the dentine may long derive some nourishment."

In the same number of *The Record*, the editor says: "Dentists who have a predilection for surgery would do well to bear in mind that a medical education and training are necessary accomplishments to acquire," etc., and by the same token it may be said that doctors who have a predilection for writing upon dental subjects should bear in mind that some knowledge of dentistry should be acquired before they attempt to teach it to others. The insinuation of the editor that the medical training of the dental student is insufficient, must be the result of ignorance on his part regarding our college curriculum. It is well known that in our leading colleges anatomy, physiology, pathology, chemistry, etc., are as thoroughly taught as in any medical college. Indeed, in the universities dental and medical students attend the same lectures on these subjects. This fact was recognized by the National Medical Association when it extended the hand of fellowship. Also by the International Medical Congress, which has given us honorable recognition as a specialty of medicine. Dr. Sexton speaks of the substitutes, or artificial teeth, as accomplishing much harm. He does not particularize any one material, but makes his declaration general. It is true that rubber often produces an irritation of the mucous membrane of the mouth, but this is no reason why all plate materials should be condemned, for the intelligent dentist knows that most objections can be overcome by using gold, platinum or aluminum. Bridge-work has not as yet received the endorsement of the more intelligent practitioners.

In answer to the question "Whether it is safe practice to retain dead teeth in the jaws" (Drs. Sexton, Shrady and Bartlett probably meaning teeth with dead pulps), an emphatic affirmative must be given. In mature life nature herself practically annihilates the pulp, and fills the canals with solid material without injury to general health. We daily see teeth from which the pulp has long been removed, which present all the appearances of healthy organs, and

there is no evidence whatever going to show that even the dentine is deprived of vitality. We say, then, that intelligent dentistry does not advocate the retention of dead teeth in the jaws, and that pulpless teeth are not, necessarily, dead teeth. Abundant experience has demonstrated that a very great majority of pulpless teeth can be retained in the jaws, and made serviceable without danger to the general health.

DISCUSSION.

Dr. Townsend—I fully endorse all that the essayist has said, but the subject is scarcely one that calls for any discussion by this society, as experience and practice show that pulpless teeth can almost universally be retained in the jaws throughout life, if properly treated. There is no opportunity for debate in the matter. Alveolar abscess, and in fact all diseases of the teeth and mouth, are as successfully treated as the diseases of any other tissues of the body, and the principles underlying treatment are as fully understood by the dentist in his specialty, as by the physician in that which pertains to general medicine. It is true that artificial teeth, when the base is constructed of the cheaper materials, are in some instances injurious to health, but this can be obviated by having a plate of gold or continuous gum. Entirely to discard the use of artificial teeth would be as inconsequential as a refusal to wear flannel undergarments because some of the cheaper grades are colored with poisonous material.

Dr. Marshall.—I am sorry the essayist ridiculed the medical profession. Those who live in glass houses should not throw stones, and while it is true that physicians, like all other mortals, are liable to err, it is also true that dentists make as many mistakes in medicine as physicians do in dentistry. Let us drop this manner of referring to the mistakes of our medical brethren. Although nature partially fills the dentinal tubuli in some cases, it never does so completely.

Dr. Ottofy.—I do not agree with Dr. Marshall in the matter of ridicule. I think Dr. Judd has a perfect right to speak as he does, and hope it may stimulate the medical profession to a better knowledge of this subject. I believe the difference in amount of diseases produced by the various bases is very slight. It is simply a question of cleanliness. Foreign matter and microbes find a better lodging-place in the vegetable plates than they do in the mineral,

and consequently the former require more persistent cleaning. It is essential that the gums and hard palate should be cleansed, as well as the plate.

Dr. Sturgis.—I approve of Dr. Judd's paper, and believe an essay of this kind will be beneficial to the medical profession. I am willing to discuss the matter with any physician, and am confident I shall be able to demonstrate as perfect knowledge of my profession as he can of his.

Dr. Koch and Dr. A.W. Freeman spoke to the same effect. Dr. Black explained the manner in which the discussion came up in *The Medical Record* two years ago. Editors of medical journals had not treated the matter fairly, and had not done justice to dentistry, for while the views of physicians were freely published, the papers written by dentists were suppressed. One of his sent to the *Medical Record* was thrown into the waste-basket, while a very unfavorable comment concerning it was published. It would have been better for all concerned had the discussion on both sides been given in full. We have ear troubles occurring from reflex nervous action, and hyperæmia of pulps of teeth, conditions which are well understood by the dental profession, but entirely ignored in this discussion by Dr. Sexton, *et al.*

Dr. Sitherwood.—If we lay ourselves open to ridicule, we should meet it unflinchingly. Perhaps such treatment is the best way to open our eyes, simply because it is unpleasant. It is true physicians make mistakes, but the fact that a single individual errs does not militate against the entire profession. They are our brethren, and we should cultivate the closest relationship with them.

Further discussion of Dr. Judd's paper was postponed until the afternoon session, and the society adjourned.

WEDNESDAY AFTERNOON SESSION.

Dr. Black was called upon and said : I will first call your attention to the plants I made yesterday. You will remember that the broth in the tubes I then inoculated was clear like that I now hold in my hand, but the change caused is readily apparent to the naked eye, all of the plants made having grown. The first is the one taken from under the rubber plate, and is the species designated *Streptococcus.* As showing the reason why the tissues under these plates become sore when not kept clean, observe the acidity when tested

with this litmus paper, the sterile broth you will remember being neutral, or nearly so. This acidity is caused by the physiological functions of the plant, the waste products being lactic acid. The acidity in these cases may continue until the growth stops. A rubber plate offers more rough places for the retention of these growths than does one of metal, and on this account alone do we have more sore mouths under the former.

My method of preparing the broth is as follows: To one-half pound of fresh, lean beef, add three pints of water, first having crushed the beef fine. Bring slowly to the boiling point in a water-bath, and boil for one hour. Filter off the fluid and sterilize it by boiling again in a water-bath. Now allow it to cool. Put in ʒ ij of pure pepsin and let it stand over night in a cool place. Boil again (in a water-bath) for one hour—it will be noticed in boiling this last time that there is considerable albuminous deposit, and the broth will have a white appearance. Filter again, neutralize with bicarbonate of soda, and if not clear filter again. Now place it in a glass flask, cork with cotton and put it in a steam-bath for one hour. The broth is then ready to place in tubes, provided it is clear after heating; if not, it must be filtered again. The tubes, thoroughly cleaned and stopped with cotton, are placed in an oven and the temperature gradually raised until the cotton is browned. The tubes being hot from the oven, and the broth taken direct from the steam-bath, the former are quickly filled and kept for four days at a temperature of 98 degrees Fahrenheit. At the end of that time, if clear and unclouded, they are ready for our purpose; but if any sign of growth is visible they must be discarded.

Gelatine: Add to 12 oz. of broth, as prepared, 60 grs. of well-dried agar-agar and 60 grs. of gelatine. Warm slowly, until the whole is dissolved, then bring to the boiling point in a water-bath. Filter and sterilize in the water-bath. Prepare and fill the tubes as described above. This gelatine ought to stand at 90 degrees. Place the tubes in a basket, and expose in a steam-chamber for half an hour. Repeat this the next day. After they are thoroughly cold, and the corks are dry, cover and tie with rubber-dam to prevent evaporation. Tubes prepared in this way will generally keep, but it is sometimes best to sterilize again after two days.

This gelatine is intended for surface planting, and the tubes

should be so inclined as to give the largest surface possible. Most microbes grow better upon gelatine mixed with agar-agar than upon pure gelatine, but the colonies cannot be seen as well. For dry plate pure gelatine should be used.

The discussion of Dr. Judd's paper being continued, Dr. Noyes said: It appears to me that nearly enough time has been occupied in the discussion of medicine vs. dentistry, and we should now turn to the subject matter of the paper—retention of pulpless teeth in the jaws. It is important that the pulp cavity should receive proper attention in these cases, but the retention of pulpless teeth depends mainly upon the integrity and health of the peridental membrane.

Success in implantation depends upon the same conditions.

Dr. Stevens said that he is not an advocate of Dr. Younger's process, and believes that in five years there will be very few successful cases in the mouth.

The report of Dr. M. L. Hanaford, of the Committee on Dental Science and Literature, was here read as bearing directly upon the subject. The following are the points of interest in the paper: The operators and the workers of to-day are far in advance of the theorists, and there are many matters of importance the theory of which is not fully understood or settled. Dr. Frank Abbott has stated that death of a pulp puts a stop to the absorption of the roots, which theory Dr. Sudduth denies, and asserts that absorption will continue, provided the peridental membrane be not in a purulent condition. Who is mistaken? This is a question of practical importance which science should settle.

Dr. Abbott recommends the use of gutta-percha dissolved in chloroform for filling root canals, and directs that a pellet of cotton wool be inserted in the apex of the root to prevent the filling material from being forced through the foramen. Another authority says this precaution is unnecessary, as a little gutta-percha driven through in this manner will do no harm. Who is right?

One authority directs the use of strongest carbolic acid in canals, while the Chicago Odontological Society claims that such treatment is not indicated. All this goes to prove that dentists are a class of hobby-riders. What we need is more careful investigation and study, and less dogmatism on the part of leaders and teachers.

Regarding the Herbst method, it was but natural that there

should be much opposition in this country, but mature thought shows it to contain many good points.

It is unnecessary to discuss the method of Dr. Younger at present. While much about it seems improbable, we should remember that criticism is easy. Let us suspend our judgment and trust to time for the solution.

DISCUSSION.

Dr. Black.—A word regarding absorption. I have seen an extracted tooth, the roots of which had been filled with gold, where the roots themselves had been absorbed entirely away leaving the filling intact. I have seen the same phenomenon where the roots were filled with gutta percha. Sometimes absorption will take place midway of the roots, cutting them in two and leaving the apices remaining. This absorption always takes place from without, and does not depend upon the life of the root.

Dr. Koch.—Would an acrid condition of the pus cause absorption of a root?

Dr. Black.—Pus will not dissolve bone or absorb it.

Dr. Koch.—What becomes of the product of absorption?

Dr. Black.—It is in the blood.

Dr. Marshall.—Is there any difference in the process of the absorption of the permanent and temporary teeth?

Dr. Black.—I think not, though in the temporary teeth the process is more regular.

Dr. Freeman.—So you regard the 5 per cent. solution of carbolic acid strong enough for use in these cases?

Dr. Black.—I should prefer it stronger.

Dr. Freeman.—Do you like the solution of bichloride of mercury better?

Dr. Black.—It destroys steel, and hence is not so good as carbolic acid, especially when broaches are used.

Dr. Harlan.—We are losing sight of the subject at issue. There are many methods of treating pulpless teeth. One that I take exception to is presented in Dr. Hanaford's paper, and refers to the use of carbolic acid, full strength, in root canals. Carbolic acid, in full strength, is escharotic and antiseptic. What need have we of an antiseptic in a tooth after it is brought into a condition to

fill? We require nothing but complete dryness and perfect filling of the root from apex to pulp-chamber. The question of filling the apex is a simple one. We must have a material that is completely impervious to moisture. I do not object to the use of paraffine, shellac, gold, gutta percha, etc., but I do object decidedly to the use of cotton or any other absorbent substance.

Dr. Marriner—Cited a case of absorption similar to those mentioned by Dr. Black.

Dr. Judd.—It is generally believed that Dr. Younger was the first to implant teeth, but similar experiments were performed by a man named Litzskerlk, in Germany, about fifteen years ago. Like all Germans, he did his work thoroughly. He found teeth thus implanted would become firm, but that in time holes appeared in the roots, and a projection into these from the alveolar walls retained the teeth. According to the gentleman's operation there was no vital connection.

EVENING SESSION.

Dr. Koch, Chairman of Committee on Dental Science and Literature, here made his report. He said that the establishment of the new dental journals of the past year was uncalled for. The profession needs not more journals, but better ones, with more carefully condensed matter.

The practice of conferring degrees by State boards should be abolished. The advance in comprehension of the theory of decay and the inward knowledge of the character of the peridental membrane was a matter of congratulation for the profession. Implantation appears to be the only true scientific advance of the year, but even this will require the test of time to determine its value. All the members were urged to study and experiment in that special line for which they felt most inclination and aptitude.

Dr. L. C. Ingersoll then read his paper on "Medicinal Stimulants." He commenced by saying that this is a laggard world. Mankind must have stimulants. The animal creation, when domesticated, must be stimulated. Even the soil needs stimulation. The entire world craves stimulants, in proof of which witness the demand for alcohol, tobacco, tea and coffee. On every dinner table is the castor with its variety of stimulating condiments—mustard, cayenne pepper, black-pepper, horse-radish and pepper-sauce.

Human nature manifests three sorts of functions—mental, moral and physical—each demanding its appropriate stimuli. No function works uniformly up to its highest standard of normality, hence the demand for an appropriate stimulus, either natural or artificial. A stimulant is a medicine which has the effect to goad on the functions to more complete service. Retardation of the blood is known to be one of the earliest histological manifestations of inflammation. A stimulant which will overcome the retardation and quicken the blood into normal flow will arrest the inflammatory tendencies and bring about resolution.

The most common indications of disease which the dentist is called upon to treat are pain and swelling. The swelling, though not perceptible to the eye, is known to the patient by a sense of fullness and pressure. This is caused by an over-fullness of the blood-vessels, which in turn is caused by retardation of the blood-current. This condition plainly calls for stimulants, with promise of success in reducing the swelling and attendant symptoms. The sense of pain is caused by unusual pressure of the over-full blood vessels upon the filaments of nerves that supply the parts; hence the stimulant that will quicken the blood-flow will relieve the pain, and for this reason one of the essential properties of a pain obtundent, where the conditions are as above stated, is stimulation.

In this connection we must realize that the stimulating effect is produced by irritation. Stimulants must be sensibly felt. They must smart, burn and irritate the surface to which they are applied. The soothing sensation and the relief from pain is a secondary effect.

This brings us to that modification of the effect of stimulants by which anæsthesia is produced. Alcohol is a powerful stimulant, and is also sedative and anæsthetic. Its primary effect is stimulant, its secondary anæsthetic. Under the former men got boisterously drunk; under the last, dead drunk. This latter is the secondary effect which follows stimulation. Almost the same action is found in using ether and chloroform. In this connection we observe the opposite effects produced by the same drug, depending upon the amount administered, the small quantity acting as a stimulant, the larger doses, according to size, acting as a sedative, narcotic or anæsthetic.

We also rely upon stimulants for a tonic effect. Tonics insensibly

promote healthy action and bodily vigor, and differ from stimulants, not in kind but in degree, the latter producing a sensible impression, while the impression of tonics is insensible. A medicine may, therefore, be both a stimulant and a tonic. As a stimulant it is mild and without any irritating effect, and this is what constitutes it a tonic. We say of a pure atmosphere that it is both stimulating and tonic. Then by dilution any stimulating agent may be reduced to a tonic.

It has of late years come to be the general opinion that little else than antiseptics disinfectants and germicides are required in healing diseases of whatever nature. For this reason it is not strange that the importance of other medicinal agents should be overlooked. If what I have already stated be true, however, something more is needed than antiseptic treatment of disease.

The enthusiasm attending the late developments of science has demanded a revision of our materia medica, that throws out many old and well-tried remedies which have proved reliable for years, because they will not stand the test as germicides. Their value is not judged by the results of actual practice, but is based on experimentation in the laboratory, where natural causes and vital reactions are forced to give way to artificial causes and chemical reactions. In these tests vital functions have been ignored. As a result of these artificial methods, preference has been given a certain class of medicines solely because they are non-irritants. Such a medicine as iodoform, containing a condensation of disgusting odors such as sulphuretted hydrogen, were inflicted upon human olfactories and are sufficient to drive patient and operator forever asunder after the first treatment with the insulting medicine, requiring also that it be kept on a platform outside the office, where a free circulation of air between it and the walls of the building may protect the apartments within from being saturated with the foul, profanity-provoking odor. This medicine makes special claims for preference over carbolic acid, creosote and phenol sodique, because it is a non-irritant. Failing in this, it was changed to iodol, an odorless non-irritant robbed of seventy-five per cent. of iodine. Bichloride of mercury and hydro-naphthol are brought into special favor, not alone on their merits as disinfectants and germicides, but because non-irritants, which is only another word for non-stimu-

lant. Stimulation and irritation serve such an important purpose in arousing functional action and equalizing the circulation, that I look with little favor on non-irritant antiseptics, except in cases where stimulant disinfectants have proved unsuccessful. In certain cases in the sick room, and for general hygienic purposes, it is of no importance that the antiseptic be stimulant. For sewers and cess-pools only the antiseptic and disinfectant properties are required. But the same medicines are not proper for general use in dental practice.

We often find septic processes to be overcome in contact with and in the midst of the living tissues. We desire here to produce, not merely an aseptic condition, but an antiseptic condition, which is accomplished by stimulating the functions of the tissues involved. This is true in cases of ulceration. If it were proved beyond doubt that all disease has its origin in micro-organisms, and should a germicide be discovered for every species of microbes that are poisonous to the human body, it would still remain true that disinfectants and germicides are not, unaided, sufficient to cure sporadic disease, for the functions are deranged and must be restored to their normal action. In some cases it is true, however, that removal of the cause will effect a cure; but this is not always sufficient, for if it be a case in which the cause has long been operative the functions have adjusted themselves to the abnormal condition of the tissues until a sort of functional momentum is acquired, and they run on continuously after the cause is removed. This is what we term "second nature"—the formation of a functional habitude by the continuance of abnormal conditions. The only mode of restoration, therefore, is to change the functions, though to accomplish it we must destroy the tissue itself. But it may be accomplished in many cases short of this by a powerful stimulus.

What is here stated regarding alcoholic stimulants is said from a medicinal standpoint only. The plea for stimulants as medicine is a plea in behalf of the sick and diseased. The well have no right to demand them.

DISCUSSION.

Dr. Newkirk.—I consider the paper an excellent one, but would leave the discussion of that part relating to antiseptics and disinfectants to those better qualified to do it justice—to Dr. Black for instance. The proper place for stimulants in inflammatory stages

is not well understood. Disease is aggravated instead of cured, unless the remedy is applied at the proper time. Alcohol is a stimulant only when administered in small quantities. The effect of alcohol, as shown in the capillaries, nerves and brain, is not stimulant.

Dr. Black.—The subject of antiseptics is one I hardly feel like talking about as yet. We have not got a fair hold of it as yet. We have plenty of good remedies, however, particularly those of a local nature. I think it hardly necessary that these should be stimulant. We really know little how poisons affect, and antiseptics must be poisonous. We may combat micro-organisms in other than antiseptic ways. For instance, a man with boils is given alkalies. Pus from these boils, if made alkaline, will not grow. We may by proper tonics produce a condition of the system that will banish micro-organism, and to this we must turn our attention.

Next in order was the paper by Dr. A. W. Harlan on "Practical Therapeutics, with Notes on the Application of Special Drugs."

The blunders of the empiric, and the subsequent study of physiological action, may be called practical scientific therapeutics. The workers in this field are increasing, as may be noticed by reference to the labors of the dozen or more in this country and abroad who have written on the subject. It is less than two hundred years since the dawn of physiological therapeutics, and we are indebted to Albrecht Von Haller for the following: "In the first place, the remedy is to be tried on the healthy body without any foreign substance mixed with it. Having been examined as to its order and taste, a small dose is to be taken and the attention directed to all effects which thereafter occur: such as upon the pulse, the temperature, the respiration and the excretions. Having thereby adduced their obvious phenomena in health, you may pass on to experiment upon the sick body."

The thralldom of the past ages of ignorance, of secret powders, essences and elixirs has been shaken off, and instead we have the open doors of experimental laboratories, and are assisted in our search for knowledge, instead of being enveloped in a dense cloud of ignorant charlatanism. In this age of enlightenment it is the duty of every dentist to know for himself why he uses a drug or chemical, and not allow himself to be misled by the pretentious claims of those who have a mercenary object in selling them. I

feel that only by iteration and reiteration can the basal principles of treatment be thoroughly inculcated, and if I can assist in the great work which our leader, Dr. Black, is engaged in—if he can discuss the cause of disease I will supply the remedy to prevent or cure it—and therein will be found my compensation. As our knowledge of pathology increases we must enlarge our understanding of therapeutics and materia medica.

Iodoform is valuable in surgery, but its odor is disagreeable; it is also toxic and irritant under certain conditions, therefore salol and iodol have been recommended as substitutes, both being agreeable and without odor. Salol is obtained by the action of carbolic acid on salicylic acid, and is soluble in alcohol, though not in water. The crystals applied to the cavity of a living tooth causes no pain. Salol is tasteless, odorless and non-irritant. Its antiseptic and disinfectant properties are not impaired by its lack of solubility in water. It is indicated in acute and chronic gingivitis, and will destroy all kinds of microbes in dilute solutions. It will prevent sepsis after operations, when dusted over the surface of wounds. It is useful in acute rheumatism, in catarrh of the bladder, and for the disinfection of the intestinal canal in typhoid fever. It may be administered in doses of from gr. x to ʒ ij.

Iodol is an expensive drug, its cost being at this time almost eight times that of iodoform. It is indicated wherever iodoform was formerly used, but is more bulky. It is particularly useful in sluggish abscesses and in gangrenous conditions of the mucous membrane and gums.

Ozonic ether, a thirty-volume solution of peroxide of hydrogen in ether, to which five per cent. of alcohol is added, is another useful combination. It is freely soluble in water, and much more stable than the ordinary $H_2 O_2$. It may be used for the same purposes locally, except on the conjunctiva and the urethral mucous membrane. For all purulent discharges it is useful as a local astringent. It is colorless, odorless, painless, and is not poisonous.

Lanolin is easily absorbed by the unbroken skin, and is a convenient vehicle for the incorporation of substances for the relief of pain when applied externally. In persistent neuralgia the extract of gelseminum or aconitum may be thus used. Aconite is highly esteemed as a liniment, and even aconitea has been recommended.

but for general local use it is too powerful to be used by the inexperienced. It would be safe, however, to combine ¼ gr. of aconitea with ten minims of rectified spirit, and add to it one ounce of lanolin. Five or ten grains of this ointment might then be rubbed on the affected part, care being taken to protect with a glove the fingers used for applying the remedy. Lanolin does not become rancid, and will take up more than an equal volume of water. Cocoaine and many other salts may be rubbed up in it.

Menthol is too little used as a local pain obtunder. The following substances liquefy when rubbed together: Equal parts of menthol and thymol crystals; equal parts of menthol and absolute phenol; equal parts of menthol and chloral hydrate; three parts of menthol and two of gum camphor; two parts of menthol and one of croton-chloral-hydrate; two parts of menthol and one each of carbolic acid and croton-chloral-hydrate. These form colorless, oily fluids, agreeable to patient and operator. They will quickly relieve the pain of an aching pulp, and are useful as local anæsthetics, not producing an eschar.

I will close by saying: "Physiological experimentation with drugs must be the basis of their therapeutical employment."

DISCUSSION.

Dr. Sitherwood.—It is my practice to use medicines from which the most benefit may be derived from the smallest quantity. I have nearly abandoned the use of creosote, carbolic acid, iodoform, and several others, on account of their disagreeable odors, etc. I like the capiscum plasters for their stimulating effect.

I use eucalyptus and aconite in glycerine. Glycerine is an excellent article used in this manner. I use eugenol exclusively, where I formerly applied oil of cloves, or remedies of a similar nature. It is especially agreeable in the mouths of children, as a dressing for exposed pulps. Phenol sodique and glycerine, equal parts, is better than the former alone. I use a ligature instead of a knife in excising hypertrophied gums and removing small, soft tumors. In pyorrhœa alveolaris the following is excellent:

Glycerine ℥ j.
Eucalyptol gt. x.

Adjourned.

(TO BE CONTINUED).

Editorial.

THE A. D. A. MEETING FOR 1887.

Many difficulties lay in the way of a satisfactory solution of the question of the Association meeting for this year, and there was a wide diversity of opinion as to what is best to be done. The embarrassment chiefly arose from the fact that the majority of those prominent in the councils of the Association are deeply interested in the success of the International Medical Congress, which meets in Washington early in September. It was feared that both could not be made a success, and that one meeting must be held at the expense of the other. Probably a majority of the members would have favored passing the meeting for the year. There were those, however, who believed that this would be prejudicial to the future of the Association, and would be an exhibition of weakness unworthy a society which stands as the representative of American dentistry, both at home and abroad. But whatever the expediency of the occasion, an examination of the organic law of the Association was sufficient to convince any one that the meeting could not legally be passed. The Executive Committee could not do otherwise than to call it, although the time and place, within certain limits, were in case of emergency left to their discretion.

We think the matter has been wisely decided. Niagara was the birth-place of the Association, and its meetings have been more frequently held there than in any other place. It was not best to go south this year, because of distracting interests, for when we do go to Asheville, or to any southern city, we wish to have nothing in the way that shall render the issue of the meeting problematical. As to the time, perhaps that most favorable would have been the week immediately preceding the meeting of the Congress, were it not that the Southern Society had already pre-empted that date. To call the meeting for the week after the Congress would be folly, because all will be exhausted at that time, and because many will then be engaged in the entertainment of foreign and other visitors.

Both time and place are now fixed, and neither is any longer a debatable question. All could not be pleased. The preferences of

some must be sacrificed, but we trust that they will accept the decision with cheerfulness. He is not a good member, or possessed of the proper spirit, who will sulk in his tent because he cannot have his own way. All society and all societies exist only by a series of compromises. Individual predilections must be sacrificed to the good of the whole. There has been in the past too much of the rule or ruin disposition, and the Association has suffered by it. This year let us all lay aside every selfish consideration and act in harmony and with unanimity. All cannot probably attend the meeting, but every one who is loyal to the society, and who loves his profession, will do what he can to promote the success of the annual meeting for 1887.

A failure has been predicted by some croakers. Why need this be anticipated? The same thing was presaged for the meeting of the American Medical Association for this year. That society is far more intimately connected with the Congress than is the A. D. A., for it has assumed control of it and made itself directly responsible for it. The most of its members are at work very hard for the success of the Washington meeting, and every energy is absorbed in preparation for that event. But the meeting of the American Medical Association, held in Chicago, in June, was the most successful that society has ever known. More than fifteen hundred delegates were in attendance, and the number of papers presented was nearly double that of last year's meeting. Why should it not be the same with our own convocation? It will be the best preparation possible for the September meeting, and the delegates will not go direct to Washington tired and jaded, but will have sufficient time for rest and recuperation.

Our most successful meetings are not usually the largest. The Association meets, not to have a good time, but to advance our professional interests. To this end, one really valuable original paper is worth more than the attendance of a hundred hangers-on. A scientific and instructive debate is not one in which a great number of persons take part, merely that they may have their names recorded in the transactions, but it is the comparison of views by those who are instructed upon the subject. If this year's meeting will witness the presentation of a few valuable papers, and their discussion by men who really have something to say, it will be worth while to attend it. If we can, this year, be freed from the crude,

undigested thoughts, the unripened fruit of undisciplined minds, and in their place get the results of a ripe experience, if those who desire to take part in the meeting will make some preparation beforehand and be ready with carefully digested and definite conclusions, if we can for one year be relieved from the infernal constitution tinkering and the by-law debating of those who are capable of nothing higher or better, then we may have a meeting that shall long be memorable in the history of the Association; one that we shall look upon with pride as having advanced the status of our beloved profession and been a blessing to all those who did not, as well as in a greater measure to those who did, attend it. Brethren, shall this be done ?

But it must be understood that there shall be no "bosses" to dominate the sessions. We have had sufficient of that in the past, and now we want a new departure. No one need kindly undertake the task of deciding who shall be the officers for 1888. The Association is quite capable of transacting that business for itself, and he who undertakes the role of dictator will surely come to grief.

The local committee of arrangements have engaged the same rooms that were occupied at the meeting last year. They have done more. There was complaint at the last meeting that some dealers were unable to secure space, others having monopolized everything. There was also annoyance from the fact that the Association was hemmed in by dealers and manufacturers, and was unable to control the passages and door-ways that led to the hall. The local committee has therefore now engaged the whole building, and the Association will itself assign space to the depots. This has not been done as a speculation, or for the purpose of oppressing any, but that the society may be able to control its own hall. Dental dealers who desire accommodations may address the chairman of the local committee of arrangements, Dr. S. A. Freeman, 14 Court St., Buffalo, N. Y.

The hotel arrangements are about the same as last year. The International will be headquarters, and will give special rates of $3.00 per day. The Cataract House will make no deductions. Some of the other hotels will make special rates, which will be announced in the circular to be issued by the Executive Committee. Rooms can be engaged by addressing the chairman of the local committee, as above.

THE LATE ACTION OF THE AMERICAN MEDICAL ASSOCIATION.

In the department of "Current News" will be found the resolutions upon the subject of the medical status of educated dentists, adopted at the late meeting of the American Medical Association, with the remarks of Dr. N. S. Davis, the President of the International Medical Congress, who offered them for consideration. We hope that every intelligent dentist will very carefully study them, entirely master their every detail and fully comprehend their tendency and bearing. If they were spontaneously offered, carefully considered and understandingly adopted in the American Medical Association, they mark a most important era in dental history, and their influence upon our future cannot well be overestimated. If they were approved without due consideration, if they were offered at the instigation of any interested man or class of men, if they were accepted simply because one high in medical councils consented to advocate them and were voted upon in mere routine, they are worse than useless—they are a mockery and a delusion. Hence it behooves us carefully to consider what influences were potent in bringing about this action; whether, in fact, it marks a real change in the medical sentiment, or whether the whole affair is mere claptrap.

We have no positive knowledge of the train of events which brought about this action. The names of influential dentists have been mentioned as having instigated the movement. If this be so, and if it be true that it was in deference to their wishes that these resolutions were passed, we must say that, praiseworthy as doubtless were their motives, it would have been better that they had not put forth their hands to steady the ark of our progress. Unless the resolutions mean an honest expression of thoughtful and enlightened opinion, they are misleading and will tend to errors. We say, therefore, that they should be carefully considered by dentists, and that we must proceed thoughtfully.

Dentistry was digged from a slimy pit. In its early days it was almost entirely mechanical and smacked strongly of charlatanism, as the resolutions intimate. But Harris and Brown and Bond and others, saw the possibilities of a reputable and scientific practice. They believed the future to be pregnant with great things for dentistry, if once its practitioners could be brought to a higher plane—if the crude methods of the day could be crystallized into a consist-

ent system to be followed by educated and intelligent men. They applied to certain medical colleges to commence the teaching of a dental practice founded on medical knowledge, and running in technical, scientific channels. What wonder that they were refused. Was the dentistry of that day a fit associate for scientific medicine? There was no theory of practice whatever. Dentists generally were ignorant, untrained, peripatetic tinkers. Exceptions there were, of course, but the great body of the dentists of that day were devoid of technical knowledge. Medicine was right in refusing to acknowledge the unknown foundling.

The only course left was pursued, and separate colleges were founded and a new, unheard-of degree instituted. In these schools the teaching was at first mainly practical, and not scientific. But we have constantly grown, and the prescience of Harris and his compeers has been vindicated. Educated men came into dentistry, and its practitioners began to be known in the world of science. Our schools became broader in their teachings, and thoughtful medical men began to see what were the possibilities hidden under the at first so unpromising exterior. Some of the great universities recognized the scientific aspect of the new specialty, and saw its near relation to medicine and the liberal professions. Harvard threw open its doors, devised a new degree more consistent with literary training, and now for the first time dentistry took her place in the halls of her mother, medicine. Other great universities followed—Michigan and Pennsylvania—and now a liberal dentistry is a recognized part of true medical teaching.

In England a movement was in the meantime active, which resulted in the placing of dental practice under the direction of medicine. We have not here the space to review the relations of the two in that country, but it must suffice to say that medicine there occupies the position of keeper, or guardian, or warden of dentistry, rather than that of mother, or elder sister. Yet the true nature of an intelligent dental practice was so far recognized in England that when the Congress of 1881 was called, dentistry was assigned a position, although no distinctive dental degree was recognized, and the success of the section so organized, the high scientific character of the papers and discussions within it was so pronounced as materially to advance our status in the eyes of the whole scientific world. The influence of that meeting extended to Amer-

ica, and the American Medical Association established a new section to be devoted exclusively to dentistry, thus practically recognizing legitimate dental practice as an integral portion of medicine.

There was another factor which has been potent in bringing about this changed condition, and that was the legislation which has been secured in many of the States, regulating and restricting dental practice. We are not at all certain that this was not the most powerful influence that had been exerted, for we were now recognized by the sister profession of law, and occupied a definitely established position; we had risen in popular estimation and were respected of the people, without which general acknowledgment all legislation was a mockery, and this had been brought about by the State laws regulating dentistry.

When the Congress was called for 1887, a dental section was formed by the men who were then foremost in its councils, and after the revolution in which the American Medical Association assumed direction, the section was re-established, consolidated and given broader scope. For the past year and a half no department of that great organization has received more deferential treatment, nor had its suggestions and wishes more promptly conceded than has that of the Section of Dental and Oral Surgery. We are free to admit that, personally, we had not at first entire confidence in the sincerity of the profession of amity and good-will. We feared there was more of expediency than ingenuousness in all the professions of confidence and trust and recognition. But time has removed these early impressions, and we are now fully convinced that the members of the American Medical Association and the principals in the Congress have learned to respect the good that is in us, and to extenuate the evil which is constantly growing less, and hence that the late expression of the American Medical Association is an indication of the changed condition of the estimation in which we are henceforth to be held by the great body of medical men.

It is true that there is a faction in medicine headed and voiced by *The Medical Record*, of New York, which, perhaps puffed up by an undue and exaggerated sense of their own importance, can see no good outside their own narrow circle. That journal never misses an opportunity to insult and belittle dentistry, or to throw ridicule upon the claims of its best exemplars. But *The Record* is

a bitter opponent of the Congress, and belongs to the prejudiced and bigoted Bourbon wing of medicine which learns nothing, makes no advance, because it is incapable of appreciating its own intolerance or comprehending the progress made by others. Happily *The Record* voices a faction which is rapidly growing less, both in numbers and influence.

We are prepared, then, to accept the resolutions of the American Medical Association as having been offered and unanimously passed in good faith. And now what is their signification? It will be seen by a careful perusal that, for the first time, the diplomas of a dental college are recognized. During all the changes and growths of the past, it has been only those dentists who possessed the medical degree who were admitted to medical equality. It is a step of which few recognize the importance, when another diploma than that of medicine is admitted, even in part, as qualifying for a place in medical practice. This action distinctly recognizes dentistry as a part of medicine, and properly organized dental colleges as teaching a specialty in general medicine, and that is a wonderfully long step in advance, if it be understandingly taken. We have never been of those who clamored for "recognition." We do not wish to be "recognized" for what we are not. But if this be an indication of the estimation in which we are honestly held, we shall greatly rejoice, because it is proof positive of a healthy scientific growth.

But it will be noticed that the American Medical Association proposes to recognize only the graduates of such dental schools as require a preliminary examination for the evidences of a fair degree of literary requirements, and which demand an attendance throughout a first-class college curriculum, with three years of study. These conditions will cover the diplomas of but a portion of our colleges. There are even now some schools which make a pretence of complying with the demands of the National Association of Dental Faculties, but which nullify them in practice. There has been in the past villainous work done by dental schools which pretend to respectability, and which have connected with them men who stand high in the councils of the profession. These schools, pretending to regularity, have graduated foreigners who were utterly ignorant of our language. They have brought our diplomas into disrepute abroad, and made American dentistry a by-word and reproach in foreign countries. Men claiming to be honorable men have practi-

cally sold diplomas for a few dirty dollars. They are becoming known, and it is time that their vile practices were yet more fully exposed, and they held up to the reprobation which they deserve. Now is the time for dentistry to put itself in line with real progress; to rid itself of the barnacles which cling to it for mere pelf or power, and to make every school what it should be. If any college will not stand fully abreast of the position outlined by these resolutions, let it be Anathema Maranatha, and its name no more be heard among honorable men. Let us cease taking young men directly from the plough or from the servants' hall, and without scientific training attempt to make professional men of them. Let us accept the liberal conditions offered, and live up to them in good faith. "Noblesse oblige," and if we do not appreciate the present opportunity we shall be unworthy any "recognition" whatever, and should henceforth be content with a position among the hewers of wood and the drawers of water.

THE WASHINGTON MEETING.

The members of the local committee having in charge the arrangements for the sessions of the Section of Dental and Oral Surgery in the coming Congress are making excellent progress. They have secured admirable accommodations for both the section meetings and the working and practical departments. The former will be held in a church that is capable of comfortably seating a thousand persons, while the latter will be in the Franklin School Building, and both these are within two blocks of the Arlington Hotel, which will be the headquarters of the Section.

All committees of the Section are making satisfactory advancement, and a superabundance of papers is already secured. In the general Executive Committee of the Congress it is freely admitted that the present probabilities are that the Section of Dental and Oral Surgery will take a prominent position, if it be not the most successful of the Sections of the Congress. It should be recollected, however, that a success is not to be secured by mere numbers. A mob is not an army, and a mere aggregation of dentists will not make a good section. We are to be estimated by the scientific work we accomplish, and not by the count of noses.

There must be no crude work done, or unscientific theories or methods presented. More men will be needed to apply the gag

than to give the spur. We have the reputation of dealing largely in rhetoric, and for making speeches that serve only to amuse and entertain. Scientific men do not mistake sound for sense, and we hope for the sake of our character abroad that if the fool-killer must make his rounds it will be just before the Congress meets, and that he will snatch away our professional speech-makers, leaving only the practical, sound, level-headed and modest workers, who do not get their theories at second-hand, and who are ready with facts instead of fancies.

IMPLANTATION.

So far as we can learn, the operations made by Dr. W. J. Younger, of San Francisco, at the east during his visit here last autumn, have not proved invariably successful. The case in Buffalo was not perhaps a fair instance by which to judge of the practice as a whole. The patient was young and healthy, but the implanted tooth had been extracted for some years, and had rested in an unclean place during all the interim. For a time it remained firm and appeared to be doing well. Then it was noticeably less stable, and this mobility increased until it finally fell out, despite the apparatus by which it was attempted to hold it in position. There was never any soreness or inflammation in or about the artificial socket—indeed, we should have felt more hopeful for the final result had a moderate degree of inflammation succeeded the implantation, for it would have been an indication of some functional activity in the tissues.

Upon its removal the tooth gave no evidence of being possessed of a pericemental membrane, nor of any degree of vitality in the cementum. There had, however, been a resorption of the surface of one side of the lower third of the root, which had left it in a honey-combed condition. We were very much disappointed in not having the opportunity to make a microscopical examination of the tooth tissues, but the patient carried it away and lost it.

The tooth implanted for "Archie," an employee of the S. S. White Dental Manufacturing Company, at their depot in Boston, during the meeting of the New England Dental Society in that city last October, also dropped out some time after its implantation. We know nothing of the history of the case, aside from the fact of its failure. It does not necessarily follow that all implantations

are failures, but these instances certainly teach that physiological law cannot be violated with entire impunity, and that there are factors which have been overlooked or ignored. Even if every operation made by Dr. Younger at the east should result in failure, the profession will still be under obligations to him for calling attention to the fact that nature will sometimes submit and adapt herself to strange circumstances.

BIBLIOGRAPHICAL.

The book notices that had been prepared for this number are unavoidably crowded out. We shall endeavor to make room for them in the next issue.

Current News and Opinion.

AMERICAN DENTAL ASSOCIATION.

The twenty-seventh annual meeting will be held at Niagara Falls, commencing Tuesday, August second, 1887. The officers having decided to change the place of meeting from Asheville, North Carolina, to Niagara Falls, it is hoped that we may have a large attendance. The principal reasons for making the change were, that many dentists residing in the South desired to attend the meeting of the Southern Dental Association, and also the International Medical Congress, to be held in Washington, D. C., September 5, 1887, both gatherings coming close together. The American Dental Association would, they thought, have a larger meeting in the North this year than would be the case had they gone to Asheville. Next year the Association may meet in the South, when it is believed we will have many accessions to our ranks You are especially urged to be present at Niagara, and help to make this one of the best meetings ever held by the Association. Arrangements are being made with railroads and hotels to secure their best rates, due notice of which will appear in the July issues of the journals.

W. W. Allport, President.
Geo. H. Cushing, Recording Sec'y.
A. W. Harlan, Corresponding Sec'y.

All railroads west of Chicago, and from Chicago leading to Niagara Falls, will carry members and delegates of the American Dental Association at one and one-third fares.

READ THE RULES CAREFULLY.

"Each delegate must purchase a first-class ticket to the place of meeting, for which he will pay the regular fare, and upon request the ticket agent will issue to him a certificate of such purchase.

"If through tickets cannot be procured at the starting point, delegates will purchase to the most convenient point where such through tickets can be obtained, and re-purchase through to place of meeting, requesting a certificate from the ticket agent at the point where the re-purchase is made.

"Tickets for the return journey will be sold by the ticket agents at the place of meeting at one-third the highest limited fare, only to those holding certificates signed by the ticket agent at point where through ticket to place of meeting was purchased, and countersigned by the secretary or clerk of the convention certifying that the holder has been in attendance upon the convention."

Tickets are good—going, three days before the meeting; and returning, three days after its termination.

Equally favorable rates are secured from the south and east

A. W. HARLAN,
Chairman Executive Committee.

The annual meeting of the National Association of Dental Examiners will be held at Niagara Falls, on Monday, August 1, 1887, at 3 P. M.

FRED A. LEVY, Sec'y.

FIRST DISTRICT DENTAL SOCIETY, STATE OF NEW YORK.

COPY OF RESOLUTIONS ADOPTED AT A REGULAR MEETING HELD IN NEW YORK CITY, ON TUESDAY EVENING, JUNE 7, 1887.

WHEREAS, Members of this society are threatened with suits for damages and injunctions if certain Letters Patent for alleged improvements in dentistry are not recognized, the validity of which has been gravely questioned, and the right to use is wholly refused, or terms and conditions imposed which would be a heavy tax upon the profession and the community for many years; and—

WHEREAS, It would be unjust for one or two members to bear the labor and heavy expense attendant upon determining how far the pretensions of such patentees ought to be respected, therefore—

Resolved, That each member of this society be requested to contribute five dollars to its treasurer towards a protective litigation fund, to be expended as the officers of the society, or a special committee, direct.

Resolved, That a copy of these resolutions be sent to other dental societies with a suggestion of the imperative necessity of financial co-operation, if effective resistance is to be made to the preposterous demands now made upon dentists by patentees.

The following resolution was also adopted at the same meeting:

Resolved, That this society recognizes the value of the proposed meeting of the Dental and Oral Section of the International Medical Congress, and hereby expresses its approval of the same and guarantees moral support to the movement That we recommend that its members lend such assistance as may be needed by the officers of the Section, thereby promoting the best interests of the profession.

B. C. NASH, Secretary. W. W. WALKER, President.

The resolutions were also adopted by the American Academy of Dental Surgery, of New Jersey, at a special meeting held on the evening of June 2, 1887. W. W. Walker, President.

These resolutions were also unanimously adopted at the annual meeting of the Buffalo City Dental Association, held June 25th, and an assessment of five dollars for each member was agreed upon. Dr. A. P. Southwick was appointed custodian of the fund.

Herbert A. Birdsall, D. D. S., Sec'y.

SECOND DISTRICT DENTAL SOCIETY.

Copy of Resolutions Adopted at a Regular Meeting held in the City of Newburgh, on Monday, June 13, 1887.

Whereas, Members of this society are threatened with suits for damages and injunctions if certain Letters Patent for alleged improvements in dentistry are not recognized, the validity of which has been gravely questioned, and the right to use is wholly refused, or terms and conditions imposed which would be a heavy tax upon the profession and the community for many years; and—

Whereas, It would be unjust for one or two members to bear the labor and heavy expense attendant upon determining how far the pretensions of such patentees ought to be respected, therefore—

Resolved, That the sum of three hundred and fifty dollars (that being $5 per member) be contributed from the treasury of this society towards a protective litigation fund, to be expended as the following committee of three shall direct: Dr. O. E. Hill, of 160 Clinton Street, Brooklyn; Dr. A. H. Brockway, of 13 Greene Avenue, Brooklyn, and Dr. J. P. Geran, of 171 Greene Avenue, Brooklyn.

The following resolution was also adopted at the same meeting:

Resolved, That this society recognizes the value of the proposed meeting of the Dental and Oral Section of the International Medical Congress, and hereby expresses its approval of the same and guarantees moral support to the movement. That we recommend that its members lend such assistance as may be needed by the officers of the Section, thereby promoting the best interests of the profession. F. T. Van Woert,

Rec. Secretary.

THE AMERICAN MEDICAL ASSOCIATION.

Editor Independent Practitioner:

Enclosed please find copy of resolutions introduced by Dr. N. S. Davis, Chicago, (Pres. of International Medical Congress) and adopted by the American Medical Association, June 10, 1887. With this action the graduates of reputable dental colleges in the United States will bear the same relation to medicine and the American Medical Association, as the English surgeons do to medicine and the British Medical Association By the strenuous efforts of men like Dr. Allport, this question of the recognition of the D. D. S. by the M. D. has been

finally settled. This action will unquestionably prove to be a benefit to both physician and dentist. Yours very truly,

E. S. Talbot,
Sec'y Section of Dental and Oral Surgery.

Resolved, That the regular graduates of such dental and oral schools and colleges as require of their students a standard of preliminary or general education and a term of professional study equal to the best class of the medical colleges of this country, and embrace in their curriculum all the fundamental branches of medicine, differing chiefly by substituting practical and clinical instruction in dental and oral medicine and surgery, in place of practical and clinical instruction in general medicine and surgery, be recognized as members of the regular profession of medicine, and eligible to membership in this Association on the same conditions and subject to the same regulations as other members.

Dr. Davis in introducing the resolution said he wished to explain its object. There are two objects to be had in view: first to relieve a degree of embarrassment that exists between the regular profession as we consider it, and the profession of dentistry. The department of dental and oral surgery is a part of the profession of medicine as much as the department of ophthalmology or otology or any other ology. Our teeth and mouth are a part of our system as much as any other part, and are used more than any other. The embarrassment is this; that in the history of the development of dentistry it originated mostly in mechanical operations. Steadily it has advanced, and in years gone by—quite a number of years ago—our lamented S. D. Gross made a proposition that an oral and dental section be provided as a section in this Association. It was seconded by Dr. Sayre and myself, and it was organized. The International Medical Congress of 1881 provided a section for dental and oral surgery. The Congress to be held in Washington has done the same thing, and it will be one of the most thorough and best organized sections in the Congress. There is an embarrassment in this respect. It is to know just who and by what line of demarkation those engaged in that department shall be recognized as members of the regular profession Now it is proposed to make a line and draw it where this resolution says; that all those who are qualified by general education and a course of study equal to the best medical colleges, a curriculum embracing the entire fundamental principles of medicine, with the provision that instead of special instruction in clinical medicine and surgery, instruction may be had in dental and oral surgery, shall be recognized as members of the profession of medicine. It will take away a sort of embarrassment. There is a more far-reaching and more valuable underlying object in this resolution, and that is that to be recognized as a member of the profession, if this resolution is adopted by this body they must have the education received in schools that require these qualifications, and it will make a strong lever to lift up the course of study in the dental schools. Such are my reasons for bringing up the resolution. I will say nothing more on the subject.

The motion was made that the resolution be adopted by the Association, and it was carried unanimously.

INTERNATIONAL MEDICAL CONGRESS.

EXPLANATORY STATEMENT.

Learning that there is still uncertainty in the minds of some as to the rights, privileges and status in the Ninth International Medical Congress of the regular graduates of the class of dental colleges specified in the resolution passed at the late meeting of the American Medical Association, it is deemed right and proper to say that the graduates of all dental colleges whose requirements conform to that resolution are considered as members of the medical profession, and are eligible to membership in the American Medical Association. They may register and take out a card of membership according to general regulations, precisely upon the same terms and under the same conditions as those who hold the degree of M. D.

Dental practitioners who, according to this resolution, are not graduates but are recommended by members of the council, become members of the Congress upon invitation, authorized by the Executive Committee.

The members of the seventeenth Section differ in no respect from those of any other Section of the Congress, and have the same rights, privileges and status.

Without doubt a large proportion of those who have received notice that they will be invited are fully qualified according to the above resolution. Whether all are, cannot now be determined, nor is it important that it should be. It is desirable to have present all who have been selected for membership. It is also hoped that those who are qualified according to the resolution will become members, and those who have not this special qualification but have high attainments in the science and practice of dentistry, may become members as any other scientific men.

Invitations will soon be sent to all who have signified a willingness to accept an invitation, and though for many this is not necessary, yet it is thought best to adhere to the original plan.

Should there be any who have delayed in complying with the request of the circular from Dr. F. H. Rehwinkel in regard to invitations, they are requested to do so speedily. J. Taft, Chairman of Section 17, I. M. C.

WHAT IS THE CAUSE?

I have repeatedly asked the question, Why is it that certain symptoms appear in connection with the wearing of *red* rubber plates, which I never find when other colored rubbers or metal plates are worn, and which disappear upon the removal and substitution of other materials?

I refer to the serious stomach troubles and chronic diarrhœa, lasting as long as the plates are worn, and disappearing as if by magic when they are permanently removed.

There are also many cases where the corners of the mouth are constantly sore from the same cause Within two weeks I have had a case of this kind. The lady had worn a red rubber plate four years. I noticed the corners of the mouth were sore, and asked how long they had been so. She replied, "Ever

since I wore the plate." I made her a gold plate, and upon calling a week later the trouble had disappeared.

I mention this case because it is recent, but I have known many others.

I ask again if some one will explain the cause, bearing in mind the fact that I have never seen these symptoms in connection with anything but the *red* rubber.

L. P. HASKELL.

AMERICAN DENTAL SOCIETY OF EUROPE.

The annual meeting of The American Dental Society of Europe will be held at the Hotel zum Riesen, Coblence, on Thursday, Sept. 1, 1887, at 10 A. M , and continue for two or three days.

President—E. P. George.

Vice-President—C T Terry.

Secretary—E. A. Galbreath.

Treasurer—W. Sachs.

Microscopist—W. D. Miller.

Membership Committee—C. T. Terry, F. Foester, L. C. Bryan.

Executive Committee—E. P. George, B. Cohen, N. S. Jenkins.

The work has been divided this year into sections, which will report in the following order, viz :

I. Operative Dentistry—Charles Kingsley, Chairman.

II. Dental Materia Medica—Wm. St. George Elliott, Chairman.

III. Prosthetic Dentistry—W. M. Patton, Chairman.

IV. Dental Education—Geo Cunningham, Chairman,

V. Dental Pathology and Histology—W. D. Miller, Chairman.

Clinics illustrating various methods of operating may be expected.

There will be an exhibition of instruments and of models and appliances for plate-work and regulating cases.

Gentlemen who design contributing papers and who have not already sent in the titles of their essays are requested to communicate them to

E. P. GEORGE,
5 Marien Str.,
Frankfort a|M.

NEW JERSEY STATE DENTAL SOCIETY.

The seventeenth annual session of the New Jersey State Dental Society will be held at Asbury Park, N. J., "Coleman House," July 20, 21, 22. It is expected to be the largest meeting ever held by the society. Many interesting papers by eminent dentists in the profession throughout the country will be read. The clinics will be made the most interesting adjuncts of the sessions, about twenty of the most skilled in the profession having signified their intention to attend and give clinics.

The board will be $2.50 and $3.00 per day, the accommodations being of the best. The Secretary will mail programmes to those desiring, every member of the profession being cordially invited to attend.

CHARLES A. MEEKER, D. D. S , Secretary.

SIXTH DISTRICT DENTAL SOCIETY.

At the regular annual meeting of the Sixth District Dental Society of the State of New York, in the city of Binghamton, Tuesday May 10th, 1887, the following officers were elected for the ensuing year:

President—E. D. Downs, Owego.

Vice-President—M. H. Fish, New Berlin.

Secretary—Myron D. Jewell, Richfield Springs.

Treasurer—F. B. Darby, Elmira.

Censor—A. M. Holmes, Morrisville.

Delegates to State Society for Four Years—M. H. Fish, New Berlin; G. H. Smith, Cortland.

MYRON D. JEWELL, Secretary.

WISCONSIN STATE DENTAL SOCIETY.

The Wisconsin State Dental Society will hold its seventeenth annual meeting at Milwaukee, Wis., beginning Tuesday, July 19, 1887, continuing for three days.

The State Board of Dental Examiners will meet daily during the sessions to examine and register applicants.

Dental and medical practitioners are cordially invited to attend.

W. S. SULLIVAN, D. D. S., Secretary.

23 E. Main St., Madison, Wis.

SUSQUEHANNA DENTAL ASSOCIATION.

The officers elected at the last annual meeting were as follows:

President—J. D. Wingate, Carbondale.

Vice-President—C. S. Beck, Wilkes Barre.

Corresponding Secretary—C. T. Meaker, Carbondale.

Recording Secretary—G. W. Klump, Williamsport.

Treasurer—Henry Gerhart, Lewisburg.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The National Association of Dental Faculties will meet at the Ebbitt House, in Washington, D. C., on Saturday, September 3, 1887, at 10 o'clock, A. M.

By order of the Executive Committee. C. N. PEIRCE, President.
H. A. SMITH, Secretary.

MARRIED.

At the residence of the bride's father, No. 54 Stimson Place, Detroit, Mich., on the evening of June 15, 1887, Miss Jessie, only daughter of Dr. Geo. L. Field, to John R. Campbell, of Detroit.

The most earnest and heart-felt wishes of a wide circle of friends go with the charming and amiable bride and the accomplished groom, and if the prayers of all who know them are answered, the bark of the happily wedded pair will sail in none but placid seas, and be wafted by only prospering gales

USELESSNESS OF LIME PHOSPHATE AS A BONE AND TISSUE FORMER.

M. Logeais quotes the experiments of Lehman, Heiden and Veiske, who claim to have demonstrated that the phosphates of lime added to the food are not absorbed, but are excreted in their entirety in the dejections. Dujardin Beaumetz is quoted as saying that this salt has no action whatever, while neither the phosphate of lime nor phosphoric acid is absorbed. To this may be added the statement of Nothnagel and Rossbach, "Never, as far as we know, has a case of rickets been cured by the administration of lime." "Everywhere there is a lack of trustworthy and extensive observations," as to its utility. All the forms of lime-salts used in practice are, according to M. Logeais, precipitated and made insoluble as soon as they pass into the stomach. They are, therefore, taken up, if at all, in the stomach alone, and the amount absorbed here is small. The practical conclusion that lime-salts of all kinds are therapeutically useless, is one which deserves the attention of the many physicians who are constantly prescribing them in various conditions. Very many dentists make it a routine practice to advise their patients to take lime-salts, especially in pregnancy; it is important that they should note that such a measure is probably absolutely without use.—*British Journal Dental Science*,

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MELTING POINT OF METALS—FAHRENHEIT.

Aluminum	1292	Gold	2485	Mercury	40
Antimony	797	Indium	348	Nickel	2912
Arsenic	365	Iron, wrought	2786	Potassium	143
Bismuth	507	Iron, cast	2192	Platinum	4712
Cadmium	608	Iron, steel	2552	Silver	1904
Cobalt	2192	Lead	617	Tin	455
Copper	1995	Magnesium	455	Zinc	773

SEABURY & JOHNSON, (Seabury Pharmacal Laboratories) New York, that wide awake and reliable firm, have added to their list of laboratory products a full line of Medicated and Antiseptic Soaps of a high degree of excellence. Conspicuous in this addition are their one and five per cent. Hydronaphthol Soaps; the former for the Toilet, the latter for medicinal and antiseptic purposes. These Soaps are prepared from the purest ingredients obtainable, highly scented, entirely neutral, containing no free alkali, acid or impure fat. Dr. C. W. Allen, of N Y., and other prominent skin specialists recommend these Hydronaphthol Soaps very highly in the treatment of ulcers, eczema scabies, impetigo, pruritus, pityriasis capitis, alopecia, favus, etc., etc. Aside from their healing powers these Soaps also impart their well-known powerful antiseptic and disinfectant properties to the waters in which they are used, and in this way free havens, bath-tubs, cesspools, sinks, etc., etc., from all unpleasant odors and foul gases.

The United States now has a population of sixty millions,—more English-speaking people than exist in all the world beside; more than the whole population of the United Kingdom of Great Britain, plus twice the population of the British colonies. In 1770 the population of the United States was three millions.

In 1850 the wealth of the United States was £1,686,000,000; that of Great Britain £4,500,000,000. In 1880 the wealth of Great Britain had almost exactly doubled, and was £9,000,000,000, while that of the United States had reached £9,790,000,000.

In 1850 the United States had scarcely any manufactories as compared with Great Britain. In 1880 the latter amounted to £818,000,000, while those of America were $1,112,000,000,—nearly half that of the manufacturing wealth of all Europe.

Dr. J. N. Farrar, of New York, has for some years been engaged on a book, the first volume of which, it is rumored, will be published this year. It will be exclusively devoted to irregularities and abnormalities in teeth, and methods for their regulation. Dr. Farrar has long been considered an authority upon this subject, and his work will be looked for with interest. It will be published in two volumes of about 500 pages each. Its scope will be broad, exhaustive and liberal, and it will present an account of all the different plans for regulation that have been used, all fully illustrated by engravings. It will not be a mere compilation, but will be an entirely original work, and it is hoped that it will serve as a text-book and book of reference for both student and practitioner.

Dr. Fuerth, at the Polyclinic, in Vienna, vaccinated a number of children from the arm of a child who was at the time apparently healthy. Several days later the latter broke out with a syphilitic eruption. The children vaccinated from it had already been distributed in the country, but Dr. Fuerth feeling the great responsibility resting upon him, took special pains to hunt up each child and keep it under observation for some time. Not one of the children vaccinated from the syphilitic child had syphilis or showed any signs of it during the several months that they were watched.

Therefore, vaccination with pure lymph from a syphilitic child will not produce syphilis; and it is only when blood has been mixed with the lymph that syphilis is imparted in vaccination.—*Archives of Pediatrics.*

The Montreal Meeting of the Conn. Valley Dental Society, to be held July 19–23, should not be forgotten. It will be a memorable affair, not alone for the scientific and professional attractions that will be presented, but on account of the social features, to which particular attention will be given. Montreal is a hospitable place, and Montreal dentists propose to sustain the good reputation of their beautiful city. There are more objects of interest to visit, and finer exhibitions of natural scenery to be seen than we know of in almost any other locality. Visits to the Lachine rapids, and to quaint old Quebec and the wonderful Saguenay, are arranged for, to say nothing of the strictly local attractions. Secretary Geo. A. Maxfield, Holyoke, Mass., will give any desired information.

The American Dental Manufacturing Co , as may be learned by reference to their advertisement, have removed their office and salesroom to Nos. 1298 and 1300 Broadway, New York City. By unusual care and attention in both their manufactories and salesroom, this company have gained an enviable reputation, and their business has so increased that better facilities and more room were imperatively demanded. In their new quarters they will have increased opportunities for serving their patrons, and their past reputation is a sufficient guarantee that no pains will be spared or expense considered when thereby their specialties can be improved.

Dr T. W. Evans, of Paris, has, it is said, announced that he should, by his last will, devise sufficient funds for the proper endowment of a dental college. If this be so, how much better would it be if he would during his lifetime see the money properly bestowed, and himself attend to the organization of such a foundation. He would thus not only have the gratification of seeing the good work commenced and probably completed, but there would be a certainty that the money would be expended properly, and not given to greedy lawyers.

"The evil that men do lives after them;
The good is oft interred with their bones."

In Scribner's Magazine for July, Professor D. A. Sargent, M. D., of Harvard College, who is perhaps the best authority in this country on the general subject of Athletics, will publish, as the fruit of many years' practical experience, his first extended article in that field, under the title "The Physical Proportions of the Typical Man." In it Professor Sargent will give a standard of physical measurement, based on the measurements of ten thousand individuals. This furnishes a basis of comparison by which any person can gauge his proportions with those of the typical man. The article will contain charts for this purpose, founded on these observations.

Owing to the Teutonic Taste for raw ham, every German town has an official microscopist whose duty it is to examine all the hams placed in the market. At Schebitz, recently, several persons died of trichinosis, and the court, having found a verdict against the microscopist for careless performance of his duty, condemned him to two years' imprisonment.

It was certainly carelessness, for no microscopist can fail to recognize *trichina spiralis* if he makes a thorough examination of the meat.—*National Druggist.*

The following named gentlemen have been appointed officers in the Section of Dental and Oral Surgery of the International Medical Congress for Great Britain: J Smith Turner, Sec. T. H. Harding, C. Spence Bate, England; Wm. B. Macleod, Scotland; R. T. Stack, Ireland, Vice-Presidents.

The May number of *The Transactions of the Odontological Society of Great Britain* contains a very elaborate and exhaustive paper upon "The Physiological Action of Cocaine on the Lower Animals and Man, and its use in Dental Surgery," by George Cunningham, B. A., D. M. D., L. D. S.

The attendants upon some dental meetings are regaled with "symposiums," whether to be served cold or hot the circulars do not state. A 'symposium" is probably intended only for the *elite*—for those who practice only "surgical" or "prosthetic" dentistry. "Symposium" is the latest fad, and according to Webster means a drinking party, it being derived from two Greek words which signify to drink together. We are decidedly in favor of symposiums, and like ours with plenty of sugar and water, but with no nutmeg.

Dr. J. H. Woolley, of Chicago, has devised a root canal dryer which is very effective. It consists of a copper broach, to which is attached a bulb that may be heated, and which in turn keeps the broach hot This latter is introduced into the canal and allowed to remain there until the cavity is entirely dry. The perfect filling is then a comparatively easy matter. No root that is not entirely devoid of moisture can be perfectly filled, and a trial of Dr. Woolley's dryer will demonstrate its advantages.

Dr. Frank Abbott, chairman of the committee on Microscopy of the Section of Dental and Oral Surgery in the International Medical Congress, desires to hear from any one who is desirous of exhibiting specimens, reading papers, or in any way assisting in the microscopical department of the Section at the coming Congress. Address him at 22 West 40th Street, New York City.

Prof. Dr. W. D. Miller, of Berlin, has been elected a Vice-President of the International Medical Congress, and is therefore one of the general officers of the meeting. There is no one who is better entitled to the honor than is Dr. Miller. He will probably be present and will present a paper.

The Board of Dental Examiners for Oregon, as finally arranged by the Governor, is as follows: Drs. J. R. Cardwell and John Welch for four years, and Drs. N R. Cox and S. J. Barber for two years. All are residents of the city of Portland.

Akron Rubber.—We wonder if dentists who are not already using this excellent material have availed themselves of the opportunity offered by the manufacturers for testing its merits? Samples are gratuitously sent wherever requested.

Dr. A. M. Dudley, of Salem, Mass , commander of Salem Post of the G. A. R., has been making a visit to the southern battle fields of the rebellion, in charge of a large number of the citizens of Salem and Boston.

Dr. G. V. Black, of Jacksonville, Ill., will, it is said, sail for Europe early in July, in accordance with the plan outlined in an editorial article printed in the last number of this journal.

Quinine, in 1880, sold for three dollars per ounce. The price is now fifty-two cents. The reduction is due to artificial cultivation of the Cinchona tree, and to the removal of tariff duties.

Dr. Zawodski mentions in a Polish Journal a case where the extraction of a lower wisdom tooth was followed by death from pyæmia on the nineteenth day.

A PHARMACEUTICAL SPECIALTY FOR DENTISTS.

LISTERINE.

FORMULA.—Listerine is the essential antiseptic constituent of Thyme, Eucalyptus, Baptisia, Gaultheria and Mentha Arvensis, in combination. Each fluid dracum also contains two grains of refined and purified Benzo-boracic Acid.

DOSE.—Internally: One teaspoonful three or more times a day (as indicated), either full strength or diluted with water, or in combination with other drugs. As a local application to ulcers, wounds and abscesses, or as a gargle, mouth-wash, inhalant or injection, it can be used ad libitum, diluted as necessary for varied conditions.

Antiseptic, Prophylactic, Deodorant, Non-Toxic, Non-Irritant, Non-Escharotic, Absolutely Safe, Agreeable, Scientific, and Strictly Professional.

LISTERINE is a well-proven antiseptic agent — an antizymotic — especially adapted to internal use and to make and maintain surgical cleanliness — asepsis — in the treatment of all parts of the human body, whether by spray, irrigation, atomization, or simple local application, and therefore characterized by its particular adaptability to the field of preventive medicine — individual prophylaxis,

AND THE REQUIREMENTS OF GENERAL

DENTAL + PRACTICE

LISTERINE IS A

Perfect Tooth and Mouth Wash,

NON-SECRET AND PROFESSIONAL,

And therefore has received the Highest Recognition as the Best General Antiseptic for a

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MICROSCOPIC OBSERVATIONS, showing the comparative value and availability of various Antiseptics in the treatment of Diseases of the Oral Cavity, by W. D. Miller, A. B., Ph. D., D. D. S., Prof. of Operative and Clinical Dentistry, University of Berlin, from whose deductions LISTERINE appears to be the most acceptable prophylactic for the care and preservation of the teeth.

LAMBERT PHARMACAL COMPANY,

116 OLIVE STREET, ST. LOUIS, MO.

CAULK'S DENTAL ANNUAL

FOR 1886-1887.

NUMBER FIVE.

PUBLISHED JANUARY 1st, 1887.

A DENTAL HAND-BOOK OF REFERENCE.

Among the CONTENTS of this valuable Number will be found several pages of EDITORIAL NOTES and EXTRACTS. Movement Inaugurated for an International Dental Congress. Directory of over 100 National, State, District, City and Local Dental Societies in the United States, with officers, number of members, time and place of meeting for 1887. Dental Periodicals in the United States. Table of 26 Dental Colleges in the United States, giving number of graduates, etc. Dental Necrology for 1886. Table of number of dentists, members of State Societies, dealers and manufacturers of dental goods, with number of Dental Journals published in each State and Territory in the United States.

Compilation of 26 States having Dental Laws.

Dental Patents issued in 1886, giving name and address of inventor. Books and Pamphlets pertaining to dentistry published during the year 1886. Additional Dental Laws of the United States.

Under the head of

Statistics of Foreign Countries,

commencing with the Dominion of Canada, we have the number of dentists, dental colleges, dealers and manufacturers of dental goods, dental societies with number of members, and full text of laws regulating the practice of dentistry in the Provinces of Ontario, Quebec, British Columbia and Manitoba; also, number of dentists in Nova Scotia, New Brunswick, etc.

In England, Germany, France, Spain, Russia, Austria, Hungary, Sweden, Norway, Denmark, Italy, Roumania, Servia, Bulgaria, Greece, Australia, New Zealand, etc., will be found special dental schools, colleges and universities; dental societies, dental journals, dealers and manufacturers in dental goods, with number of dentists in each country as far as we have been able to obtain them.

Original Articles.

On Destroying the Pulp and Filling Pulp Cavities and Canals.—A. H. Fuller, M. D., D. D. S., St. Louis, Mo

How, When and Where to use Cements.—J. R. Walker, D. D. S., New Orleans, La.

Amalgam.—J. W. Clowes, D. D. S., New York, N. Y.

Dental Education in the United States.—Louis Ottofy, D. D. S., Chicago, Illinois.

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L. D. CAULK, Publisher,

Camden, Delaware.

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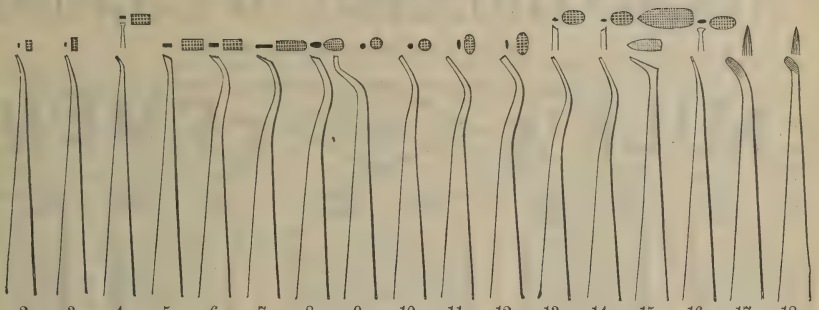
(Latest Forms.)



This set of Pluggers was devised by Dr. Williams to meet the requirements of his own peculiar style of operating. In explanation of these Pluggers and their uses he writes as follows:

"To make as perfect a mechanical union or adaptation of cohesive gold to the walls of a cavity as is possible in the use of non-cohesive gold, has always seemed to me to be simply a question of manipulation. It is well-known that cohesive gold is *softer* than non-cohesive, and it only requires proper manipulation to make, at least, as perfect work as can be made with non-cohesive gold. In the preparation of cavities I avoid, so far as is possible, all undercuts, acute angles and corners. In accordance with this idea, these pluggers are nearly all round or oval on their faces. I aim always to mallet the gold towards the walls (the sides as well as the bottom) of the cavity. After the bottom of the cavity is covered with gold, I work from the center of the filling towards the walls. This method of manipulating cohesive gold utilizes its most valuable property, viz:, its malleability. The center of the filling is kept the highest, and the *slightly* convex working faces of the pluggers *spread* the gold towards the walls of the cavity. The individual pluggers, with a few exceptions, need no explanation. Nos. 11 and 12 are peculiar in their design, and will be found very useful in filling fissures in lower molars. Nos. 13 and 14 were designed for use in proximal cavities of molars and bicuspids, and also for building up the cutting edges of lower incisors. While originally designed for use in the Electric Mallet, they are admirably adapted for the Automatic Mallet or for hand-pressure. Those made for my own use in the Automatic mallet have a short shank, which enables me to work with greater precision."

Price per set	$25.00
" separately—Nos. 1, 2, 3, 4, 5, 6, 9, 10, 11, 12, 13, 14	1.25
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I shall find pleasure in calling attention to the exceedingly fine and accurate serrations on the points, which I find have been stoned smooth. A new departure that I hail with joy.

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FOUR COLORS and LIQUID.—Gray, Yellow, Medium and Light, - - $2.00 per Package.
TWO COLORS and LIQUID.—Gray and Yellow, - - - - 1.50 " "
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THIS COMPOUND STANDS WITHOUT A RIVAL.

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Diamond Cement should not be classed with the so-called oxy-phosphates, as is often the case—the materials of which it is composed and its process of manufacture being entirely different—hence its SUPERIORITY.

It will Harden in Water or Saliva. The liquid does not crystallize.

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Gum Color Cement for making tight joints in vulcanite work. Diamond Cement has been used for this purpose for many years, and in order to supply the recent demand we are making a *better color*, and an article more suitable for this purpose than can generally be found in the market. Mix thin, drop into the joints, and pack at once.

The use of cements is not sufficiently inculcated. We use it as a rule when patients are not able to pay for large gold fillings, as a matter of economy, but the fact is it saves teeth that gold would not save. I have a case in mind. Teeth which were decaying rapidlv *FIVE YEARS AGO*, I filled with Caulk's Diamond Cement, and they are now in good condition.—Dr. E. S. Chisholm, in *Transactions* of the *Alabama Dental Association for* 1886.

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This GOLD AND PLATINA ALLOY is manufactured on a NEW PRINCIPLE.
None better made. Saves Teeth where others fail.

With one exception, we were the first to manufacture Amalgam containing Gold and Platinum, although we did not call it such, simply our trade name, Par-Excellence Alloy, which fully expresses the superiority of this combination of metals over others. It is the result of a long series of experiments, and has been in constant use for nearly ten years. By our new method of manufacture there is no **guess work,** the molecular change is controlled, making each and every ingot always and absolutely alike in its properties.

Price in ⅓, ½ and I ounce packages, per ounce, $3.00; 2 ounces, $5.00.

CAULK'S WHITE ALLOY

Has been greatly improved. Costing more to produce it.
There is NOTHING EQUAL or Superior to it.

Is of a peculiar grayish-white color. When amalgamated in the hand it works with a soft and velvety feeling. It is very DENSE, and so malleable that it can be malleted with the greatest ease. Has been highly recommended in Combination Fillings of Gold and Amalgam. When properly manipulated with our PURIFIED MERCURY it will retain its color under all circumstances.

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MADE BY

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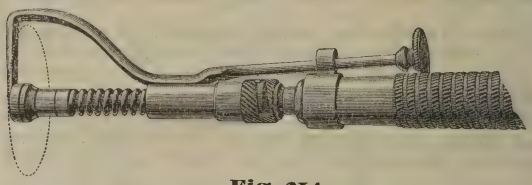

Fig. 214.

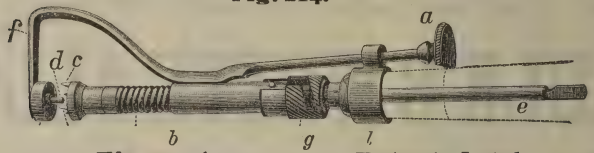

Fig. 214 A. **Patented Feb. 10, 1885.**

This invention will be found indispensable by every dentist who values time, as it will enable him to attach the much used Disk to the Engine Mandrel in a small fraction of the time required by other methods.

It is represented in the figures as connected to the Hand-piece. In Figure 214 the holding device is represented as closed, the outline of Disk being indicated by circle of broken lines. In Figure 214 A, it is shown as opened by slight pressure of the thumb or finger against the knob *a*, ready to receive the disk. Upon relaxing this pressure the spring *b* closes upon the disk, which is centered upon *d*, perforated by four hardened steel points, *cc*, and thus securely held ready for rotation. The carrier is attached to the Hand-piece by insertion of the Mandrel *e*. A friction ferule *l* overcomes slight tendency of bracket *f* to rotate, and enables the operator to retain the guard opposite that portion of the disk where it will most effectually guard cheek, tongue, or other part from injury, or, prevent interference with rubber dam. At *g* is a locking sleeve, employed only when in the use of stiff disks there is a tendency to overcome pressure of spring *b*, and permit loosening of disk.

The Carrier will receive disks of ⅞ inch diameter down to ¾ or even smaller. It may be rotated in either direction without loosening the disk, as occurs with the ordinary screw-held disk.

PRICE, $2.50.

We are prepared to supply the Disk Carrier and Guard to fit the S. S. W. Hand-pieces, Nos. 5 and 6, Hodge's and Bonwill's Improved, at this price. Other Hand-pieces, if sent us, will be fitted to order at the same price, or at a moderate additional charge. ***In ordering, state what Hand-piece is used.***

MESSRS. CODMAN & SHURTLEFF : BOSTON.

Gentlemen,—The new Disk Carrier, with guard, which I have fully tested, is very satisfactory in all respects. I prefer it to any other pattern now in the market.

ISAAC J. WETHERBEE, D. D. S., *Pres. B. D. C.*

From J. B. Coolidge, M.D., D.D.S., Professor of Clinical Dentistry, in Boston Dental College.

MESSRS. CODMAN & SHURTLEFF:—

The new Disk Carrier which you sent me is the best. It will very soon save its cost in the time required for changing the disk. The guard will be found of great use in protecting the cheek, tongue, and rubber dam from the action of the disk. I would recommend it to every Dentist.

J. B. COOLIDGE.

From J. A. Watling, D.D.S., Professor of Operative Dentistry, Michigan University.

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It is one of the best that I ever used. Is readily applied to the engine, and to replace the old disk with a new one requires but a few seconds.

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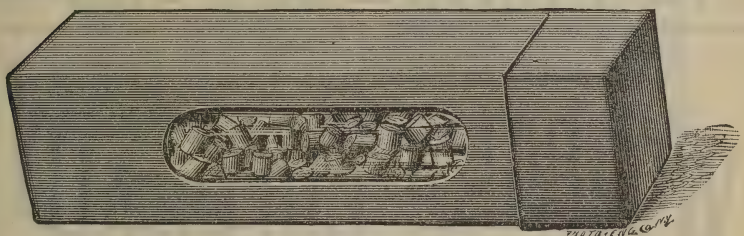
It is indeed an instrument to be desired by all careful practitioners.

1-6-an-1 Respectfully, J. A. WATLING, D. D. S.

EXTRA PLIABLE DECIMAL GOLD ROLLS.



(This Engraving represents a Phial of size 1 of the above designated Gold, inclosed in a Box.)

Gold Foil and Gold Rolls, per 1-10 ounce,	$3 00.	Per ounce, $28.00
Extra Pliable Decimal Gold Rolls, per 1-10 ounce,	3.50.	Per ½ ounce, 17.00
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Ideal Cement, per package, with Pigments,		1.00
Rowan's Ideal Alloy, No. 1, per 1 oz. $5.00, 2 ozs. $9.00, 4 ozs.		16.00
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Tin Foil (our make), very tough, per book,		.50

Try some of our "Ideal" Cement Filling and "Ideal" Alloy.

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October 23, 1882.

271 N. Eutaw Street. BALTIMORE, Md., June 5th, 1883.

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Sirs—I have used your Rolled Gold for several years. When I wish to use *cohesive* gold, I prefer your No. 30 Rolled to any gold with which I am familiar. It is very tough, soft and cohesive. In short, pleasant and easy to work, and makes a compact, even and finished filling. Yours truly,

L D SHEPARD,
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S. H. GUILFORD, A.M., D.D.S., (*Professor of Operative and Prosthetic Dentistry, Phila. Dental College,*) has permitted us to state that he uses and recommends our "Gold Rolls."

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COHESIVE, SOFT No

WOLRAB'S PURE CHEMICALLY

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SOLE AGENTS FOR THE U. S.

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CUT OF FOIL ENVELOPE

Foil, $4.00 per ⅛ oz., $15.00 per ½ oz., $30.00 per 1 oz.

On orders of two ounces and more at a time a reduction of 50 cents per ounce will be given.

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Very good reports have been received from prominent practitioners.

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CUT OF LABEL FOR CARTON BOXES.

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CHEMICALLY PURE

for the HERBST METHOD

MADE EXPRESSLY of filling TEETH

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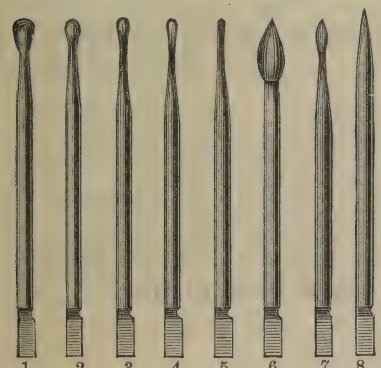
HUDSON ST. HOBOKEN N.J.

Cylinders, $4.50 per ⅛ oz., $17.00 per ½ oz., $34.00 per 1 oz.

Instruments for the Herbst Method



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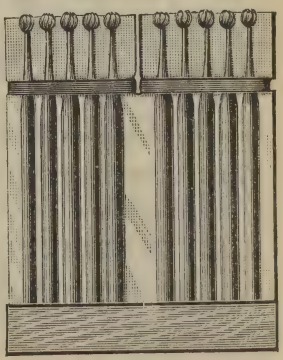

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Takes the place of gold for filling front, or any teeth.

PRICE, $3.00 PER OZ.

Test for Color—Place a button of Amalgam, that has one surface polished, into a solution of 40 to 60 grs. of sulphuret of Pottassa in 1 oz. of water. Let remain 24 to 48 hours.

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This Alloy Stands These, and Any Other Tests Deemed Requisite to Perfection.

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Surpasses all others for strength and density of texture. Use it for Crown Work, in Molars, &c.

PRICE REDUCED TO $4.00 PER OZ.

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THE FOLLOWING TESTIMONIALS ARE RESPECTFULLY OFFERED.

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I take pleasure in recommending it as the best now known.
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I am satisfied it is the best in use. I can recommend it to the profession.
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3-5-AN-½.

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COHESIVE AND SOFT

GOLD FOIL,

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MR. E. KEARSING, *Dear Sir:*—After having used your gold foil for five years, I can say that it gives me better satisfaction than any other that I have used. For restorations and all work where I greatly depend upon cohesive qualities it never fails.

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MR. E. KEARSING, *Dear Sir:*—After having used your gold, both soft and cohesive, for nearly five years, I find it has given me entire satisfaction in all cases.

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7-4-AN-½

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A. L. LAWRENCE.
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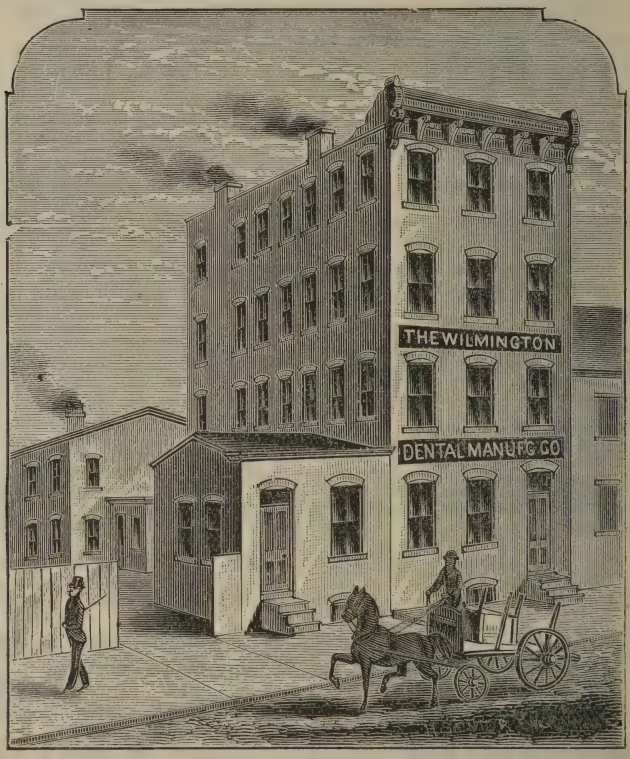
MANUFACTURERS OF

ARTIFICIAL TEETH,



Nos. 1010 and 1012 KING STREET,

WILMINGTON, DELAWARE.

Having been justly recognized as manufacturing a very SUPERIOR TOOTH at a very moderate PRICE, they now avail themselves of this medium by which they hope to present their merits to the Dental Profession. They have now perfected their designs as to the character of their MODELS, and have fully succeeded in being able to present to the Dentist an opportunity to select a SHADE of enamel which will harmonize and correlate with that of the natural tooth.

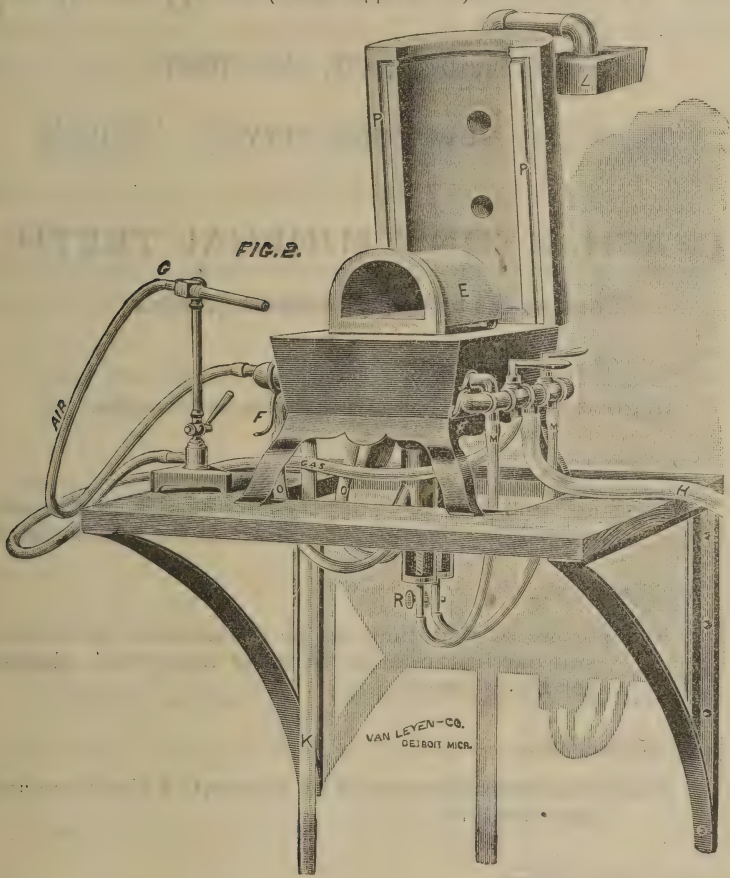
☞ *For sale by Dental Dealers everywhere. Send for price list.*

DR. C. H. LAND'S

COMPOUND

GAS OR GASOLINE FURNACE

(Patent Applied for.)



Size No. 1, especially adapted for all kinds of muffle work, crucible work, blow-pipe work, forging and brazing. It is the most complete furnace ever devised for the chemist, assayer, jeweler, dentist and metallurgist. Continuous gum and porcelain can be baked in from 15 to 20 minutes in the most perfect manner and with unerring precision. Send for descriptive circular.

Instructions—In order to enable those who contemplate using gas furnaces and to comprehend their great superiority over coal or coke fires, my laboratory will be open free to all, and with those who desire a special course in continuous gum work, enamel metallic coatings and enamel fillings, favorable arrangements can be made. A visit to my laboratory will be of the utmost value. Here furnaces are operated by both foot and steam power, using either gas or gasoline. Thus practical working can be seen to the best advantage.

Address, C. H. LAND, 264 Woodward Ave., Detroit, Mich.

GEO. E. HODGE, President. AUG. WEBER, Secretary.

THE

New York Dental Manufacturing Company

1300 BROADWAY, COR. 34th STREET,

NEW YORK CITY.

C. ASH & SONS' MINERAL TEETH

Possess the following desirable qualities:

1. *NATURAL FORMS—*

   In great variety and of various sizes and lengths.

2. *COLOURS—*

   Ranging from very light to very dark shades, and closely resembling the various colours of the human teeth.

3. *TEXTURE—*

   Non-porous, so that they can be ground and polished to suit particular cases, therefore being well adapted for Bridge work.

4. *STRENGTH—*

   Possessing unusual strength on account of their fine and close texture.

5. *SOLDERING—*

   Bearing in an extraordinary manner the sudden transitions of temperature so that they can be soldered without cracking.

We especially invite comparison to each of these points enumerated above. There are no teeth in the world made to compare with them

THE "DIATORIC" TEETH

without pins, are superior to any cheap tooth made in this country.

The very high reputation obtained all over Europe and other parts of the world, by the Messrs. CLAUDIUS ASH & SONS, for the superior excellence of their

Mineral Teeth and Dental Rubbers,

seems to be rapidly coming to them in this country.

We have the largest stock of these goods of any depot in the United States, and are prepared to give particular attention to filling orders, and to the selection of teeth for special cases.

Hand Piece for Dental Engine, - - - - $10.00.
Right Angle Attachment, - - - - - - 6.00.

Stone Cut Burs, per Doz.		Keen-edge Burs, per Doz.	
000 to 8	$3.00	000 to 8	$2.25
9 to 11	4.20	9 to 11	3.60
12 to 14	4.80	12 to 14	4.20
Finishing, per Doz.		**Finishing, per Doz.**	
3 to 8..50 c. each	$6.00	3 to 8..40 c. each	$6.00
9 to 11..60 "	7.20	9 to 11..60 "	7.20
12 to 14..75 "	9.00	12 to 14..75 "	9.00
Drills, per Doz.		**Flexible Burs, per Doz.**	
00 to 8	$2.00	1 to 5...40 c. each	$4.80
0 to 5, flexible	4.00	Morey Drills, 50 c. each	6.00

We shall soon issue a card for a new variety cavity cutting stone cut bur.

The World's Premium Teeth.

A Statement of Facts.

ABUNDANT justification for the bestowal of the above appellation upon our Porcelain Teeth is found in the long line of first awards which they have received.

Starting with a Gold Medal, awarded at the American Institute Exhibition at New York in 1848, the list of testimonials of similar character has steadily grown, no year having passed without contributing its quota. Wherever and whenever our Teeth have been placed in competition they have carried off the honors.

This is emphatically true of the Great World's Fairs, beginning with the first (Crystal Palace), held in London in 1851, and ending with the Cotton Centennial at New Orleans, ten in all. Whenever graded premiums, denoting degrees of merit, have been granted, we have uniformly received the highest.

Three conspicuous examples may be given — Paris, 1867; Vienna, 1873; Paris, 1878. At the first Paris Exposition Universelle in 1867, a Gold Medal was awarded to Samuel S. White. No other manufacturer of porcelain teeth was similarly honored. At Vienna Gold, Silver and Bronze Medals were conferred to distinguish degrees of merit; but above and beyond even the Gold Medal was the Grand Diploma of Honor, which was conferred as the "peculiar distinction of eminent merits." Of the hundreds of individual exhibits from the United States only four were esteemed worthy of this "peculiar distinction." Medals, especially those of Bronze, were lavishly bestowed. The Grand Diploma of Honor, the "only really valuable distinction," was awarded to Samuel S. White. It seems necessary, even at this date, to repeat the statement that the highest award received by any other manufacturer of Porcelain Teeth was a Bronze Medal. At the Paris Exposition of 1878, graded Medals were conferred. In the department of Dentistry four medals were granted to exhibitors from the United States. Three of these were of Bronze and were received by our competitors; the fourth was of Gold and was presented to Samuel S. White.

In the light of the foregoing facts a Bronze Medal would seem to have small claim to the honor of "First Medal," or "Highest award," at either the Vienna Exposition or the Paris Exposition of 1878.

Most of the World's Fairs, beside those already mentioned, conferred but one medal on all alike whose exhibits were deemed worthy of award, relative merit being indicated, if at all, by discriminating reports of the Judges. The American Centennial, Philadelphia, 1876, is a type of these.

The announcement by an exhibitor that he received the "First Medal" at the Centennial is evidence either of misapprehension of the system of awards or of willful intention to mislead. Every medal conferred was of bronze. The highest award could only be determined by comparing the Judges' Reports on the various exhibits. In proof of our claim that we received the highest award, we submit a copy of the Official Report on our exhibit:

GROUP NO. 24. PRODUCT, PORCELAIN TEETH. EXHIBITOR, SAMUEL S. WHITE, PHILADELPHIA, PA.

The undersigned, having examined the product herein described, respectfully recommend the same to the United States Centennial Commission for award, for the following reasons, namely:

1. That while equal to all others in color, texture and translucency, they are DECIDEDLY SUPERIOR in a faithful reproduction of the physiological characteristics of the natural organs, both in the individual teeth and relatively to the entire set.

2 Their conformation with reference to close and easy adaptation to the maxillary arch shows careful study of the needs of both patient and operator.

3. For the various and numerous deviations from uniformity of arch and outline, simulating the irregularities of nature, and thereby disarming suspicion of their artificial character.

4. For the skillful distribution of tooth-material in such manner as to secure the greatest amount of strength with the least bulk and weight, and for the peculiar form and insertion of the platinum pins. For the maintenance of these good qualities through an immense variety of size, color, and form of each class of teeth, **Excelling any other Exhibit.**

Signed,

C. B. WHITE, M. D.
J. H. THOMPSON, M. D.
W. ROTH, M. D.,
Surgeon-Gen'l, Saxony, Ger.
ERNST VON FLEISCHEL, M. D.

One Hundred and Three First Premiums—and we mean FIRST; no award being reckoned as a first premium which was not the highest in our class—establishes our claim that our Porcelain teeth are justly entitled the World's Premium Teeth.

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

DENTAL INSTRUMENTS.

MORE than twenty years ago it was determined that this house should manufacture instruments of a higher quality and of better finish than had ever been placed within the reach of the dental profession. That there was great room for improvement and a necessity for a better class of implements to meet the needs of the growing ambition and the increasing manipulative skill of dental operators admitted of no question. In form, in temper, and in finish a new departure was imperatively demanded. From that day to this, without regard to expense, we have spared no effort to get out all that skill, ingenuity and patient industry could produce from steel, in order that we might claim, without fear of successful contradiction, to lead the world in dental instruments.

It is a common remark of physicians and surgeons nowadays when examining our stock of dental instruments, "No wonder American dentistry has made the progress it has. No surgical instruments are to be had which, in adaptation to the uses intended, in temper or in finish, are at all comparable to these."

The dental profession has been quick to perceive and prompt to avail itself of these manifest advances, and we are glad to acknowledge that the appreciation thus shown has been a constant stimulus to fresh effort and further progress.

We point to-day with pardonable pride to the universal acknowledgment that our products in Steel—Pluggers, Excavators, Scalers, Burs, Forceps, etc.—excel all other goods of their kind to be found in the world, because we believe the distinction has been earned. We have observed, compared, reflected and recorded; we have gathered patiently and perseveringly the suggestions and criticisms of the dental profession through many years; we have adopted from every available source improved methods of manipulation; we have made many experiments and modifications, wresting success from our very failures. Upon the outcome we challenge the world to produce like combinations of delicacy, temper and strength.

As is usually the case with successful efforts of this character, our productions have been extensively copied, and there are more imitations on the market to-day than ever before. The productions of other establishments in our line, during the last fifteen or twenty years, have been mainly imitations of goods first brought out by us. Nearly all the instruments and appliances which have marked real progress in the dental art have been introduced by this house. These imitations especially of the smaller instruments, are frequently difficult of detection by mere sight, but in use their inferiority becomes painfully apparent to one accustomed to our goods. The small saving in cost is no compensation for the difference in quality, for to the dentist **THE BEST IS ALWAYS THE CHEAPEST.**

There is no necessity for any dentist to accept other makes of goods if ours are desired. If ours are not obtainable elsewhere, a direct order to us with remittance will receive prompt attention.

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

STONED ENGINE BURS.

REDUCTION IN PRICE.

Stoned Cavity Burs

Nos. ½ to 7, 11½ to 18, 22½ to 29, 33½ to 40, 44½ to 51, 55½ to 62, 66½ to 73, 88½ to 95, ... per doz. $3.00.

Stoned Cavity Burs

Nos. 8 to 11, 19 to 22, 30 to 33, 41 to 44, 52 to 55, 63 to 66, 74 to 77, 96 to 99, ... per doz. $4.00.

Stoned Plug-Finishing Burs

Nos. 200 to 204, 206 to 210, 212 to 216, 218 to 222, 224 to 228, 230 to 234, 236, 240, 242 to 246, ... per doz. $6.40.

Stoned Plug-Finishing Burs

Nos. 205, 211, 217, 223, 229, 235, 241, 247 to 250, . . per doz. $8.00

TRADE

MARK.

Our Trade-Mark, as above represented, is our guarantee of quality to the purchaser of our goods. It is stamped upon dental instruments of our manufacture whenever practicable; and when this is impossible the goods are put up in packages or envelopes bearing a printed copy of the Trade-Mark.

We have had instruments which were not of our manufacture sent to us for exchange on account of defects.

Purchasers would do well to examine all instruments and decline to receive any as our make that do not carry the Trade-Mark, either on the instruments or on the wrapper.

All our instruments are subjected to severe tests before they are put on sale, and we will gladly exchange any instrument that shows flaws or defects.

We invite the most critical examination of the instruments bearing our Trade-Mark, and are willing to have them submitted to the severest test which instruments are subjected to in the hands of an intelligent practitioner.

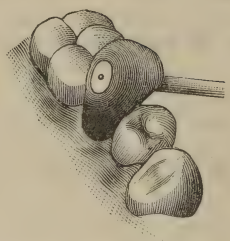
THE S. S. WHITE DENTAL MANUFACTURING CO.,

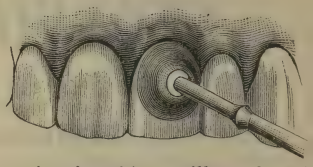
Philadelphia, New York, Boston, Chicago, Brooklyn.

SOFT RUBBER POLISHING CUP.

SUGGESTED BY DR. J. B. WOOD.

Patent applied for.





These little Cups of soft rubber will be found among the useful appliances for cleansing and polishing the natural teeth. Under slight pressure the cup adapts itself to the shape of the tooth, carrying the polishing powder to every portion of the surface without discomfort to the patient. The lingual and palatal surfaces are as readily operated on as the labial and buccal faces.

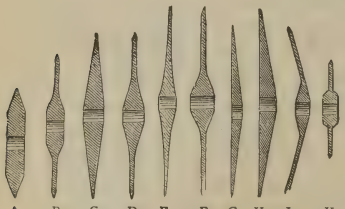
Two sizes are made. Used with mandrels Nos. 303, 304, and 313.

Price, - - - - - - - - each 5 cents.

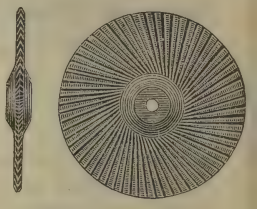
REDUCTION IN PRICES.

CORRUGATED SOFT RUBBER DISKS AND POINTS.

SUGGESTED BY DR. C. E. FRANCIS.

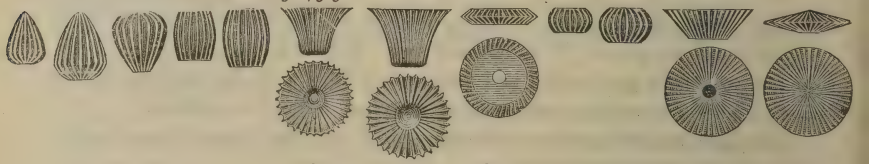


A B C D E F G H I K



Disks, A to K, not mounted, - - - - - - - - - each 5 cents.

Can be used on Mandrels Nos. 302, 303.



1 2 3 4 5 6 7 8 9 10 11 12

Points, Nos. 1 to 12, not mounted, - - - - - - per doz. 40 cents.

" " " " - - - - - - - - each 3 4 "

Can be used on Mandrels Nos. 302, 303, and 313.

These Disks and Points of soft rubber, with CORRUGATED surfaces, are pronounced very superior to those with plain surfaces. They are used for carrying powders, either for polishing the natural teeth or for finishing fillings.

BONE-CENTER TOOTH-BRUSH WHEELS.

REDUCTION IN PRICES.

No. 1.

No. 2.

No. 1.	Cup Shape, with Stem,	-	20 cents.
No. 1.	Cup Shape, without Stem,		20 "
No. 2.	Straight, with Stem,	-	25 "
No. 2.	Straight, without Stem,	-	25 "

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

DR. E. PARMLY BROWN'S TOOTH-CROWNS.

Patent applied for.

FIG. 1. FIG. 2. FIG. 3. FIG. 4.

Fig. 1 is a lateral view of a porcelain crown, with a platino-iridium pin baked in position. The pin has great strength at the neck of the tooth, where the strain is greatest, the porcelain of the tooth extending up on to the pin to increase the strength.

Fig. 2 is a front view of the same crown, showing by dotted lines the form which the metal occupies in the crown to increase the strength of the attachment, and prevent the pin from approaching the surface in thin teeth.

Fig. 3 is a view of the two-pin bicuspid crown, which affords a pin for each root of a two-rooted bicuspid.

Fig. 4 is a view of a bicuspid crown with the two pins pressed together, making a single pin for one root.

The double pin in the bicuspid crown prevents the loosening of these teeth by the rotary movements of mastication, which by means of the two cusps exert such leverage as to turn and break down the ordinary crown where only one pin is used.

The roots are ground concave to fit the crowns with corundum points or a Willard countersink bur, and the close joints made well under the gum, setting the pins with oxyphosphate cement.

See DENTAL COSMOS, September, 1886, pages 583, 588, and 589.

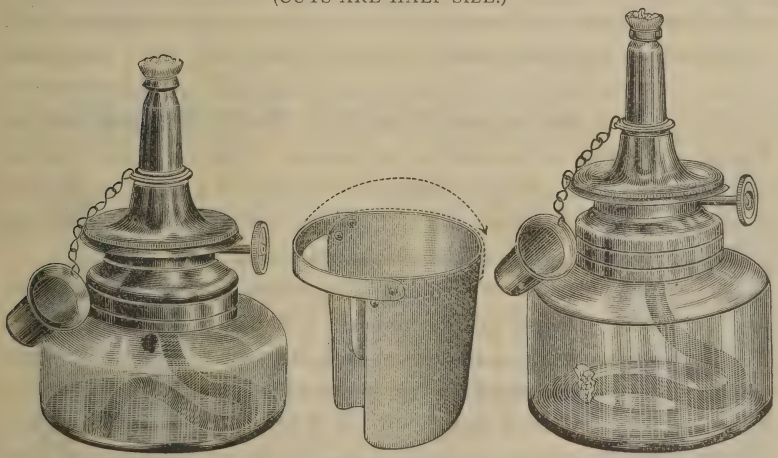
PRICES.

Brown's Tooth-Crowns, single pin, - - - - - each 65 cents.
" " double " - - - - - - " 65 "

ALCOHOL LAMPS WITH IMPROVED FLAME SHIELD.

Suggested by Dr. J. V. Calver.

(CUTS ARE HALF SIZE.)



No. 1. IMPROVED FLAME SHIELD. No. 2.

The Lamp is so well known and shown so plainly as to need no explanation. The Flame Shield has been improved by the addition of a semi-circular band pivoted on the edge of the shield and capable of being turned forward and backward as shown in cut. When brought forward it forms a rest for small heating cups, annealing trays, etc.

Price of either Lamp, without Flame Shield, - - - 40 cents.
" " " with " " - - - - 70 "

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia, New York, Boston, Chicago, Brooklyn.

To the Dental Profession.

GENTLEMEN:

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

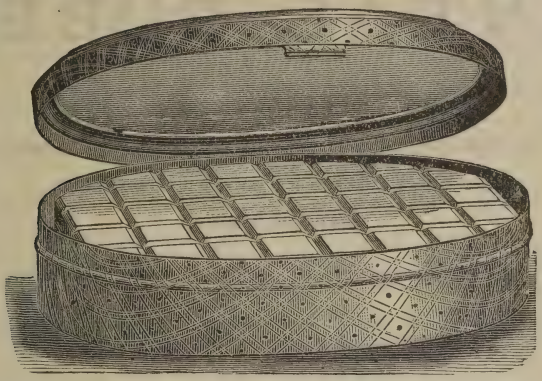
I. W. LYON, D.D.S.,

88 MAIDEN LANE, NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

DR. I. W. LYON'S TOOTH TABLETS



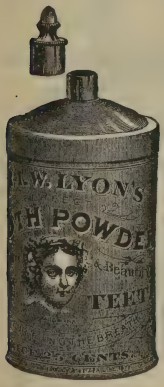
For Purity, Efficiency, Neatness and Convenience these Tablets have no equal as a Dentifrice. They are put up in Seamless Metallic Boxes, which are impervious to air and moisture, and may be carried on a journey without danger of breaking.

HIGHLY INDORSED BY EMINENT DENTISTS.

PRICE **50** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

DR. I. W. LYON'S

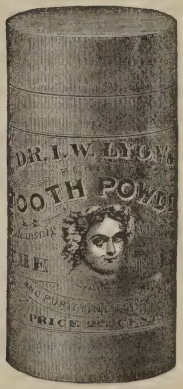
PERFECT TOOTH POWDER



ENAMELLED METAL BOX
REDUCED IN SIZE.

This Powder is carefully prepared by an experienced dentist, familiarized by practice with the wants of the teeth. It is absolutely pure and free from acid, grit, or other hurtful substances, and is highly recommended by the most eminent men in the profession. It gives a *delightfully refreshing sensation* in the mouth, strengthening and healing the gums, and imparting a fragrance to the breath which is very agreeable.

Put up in an enamelled metal box with sprinkler top, free from the mishaps incident to glass or wood, and very convenient for use, especially in traveling.



ENAMELLED PAPER CARTON
REDUCED IN SIZE.

PRICE **25** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

I. W. LYON, D.D.S., PROPRIETOR,
88 MAIDEN LANE, NEW YORK.

3-5-AN-2

AKRON
DENTAL RUBBER

The materials of which this Rubber is composed
are prepared by new processes,
which insure

ABSOLUTE PURITY,

Resulting in a Product of Wonderful

DENSITY, FIRMNESS AND STRENGTH.

It is especially designed to meet the requirements of those who seek to produce the most perfect and artistic work.

It is exceedingly tough and light, and takes a beautiful polish.

Plates may be made very thin without danger of splitting or crumbling away about the edges.

It can be used with the best results for making partial lower dentures, an advantage which no other rubber possesses.

It has the unqualified approbation and endorsement of the profession everywhere, and never fails to give satisfaction.

It will cost you nothing to try it.

Send for samples and prices.

AKRON RUBBER WORKS,

AKRON, OHIO.

Sold by all Dental Depots.

11-5-AN-1

PARSON'S EUREKA SILVER ALLOY.

I am manufacturing and offering for sale a superior Amalgam or Silver Alloy, which has the following properties: It is a quick setting alloy, has great edge strength, therefore a superior alloy for mounting artificial crowns on natural roots. Fillings may be finished and polished in fifteen or twenty minutes after inserting, and retain their polish and silvery whiteness remarkably.

It does not spheroid or bulge like many alloys of inferior grade.

If you wish to use one of the nicest working alloys in the market, send for ½ oz., **$1.50**; 1 oz., **$3.00**; or 4 oz. for **$10 00**.

Let the profession give my alloy a fair and impartial trial, and I feel confident I shall receive a liberal amount of patronage. Respectfully,

DR. W. H. PARSONS,

Sole Proprietor and Manufacturer. WAMEGO, KANSAS, U. S. A.

TESTIMONIALS.

HOUSTON, TEXAS, April 26, 1885.

DR. PARSONS—*Dear Sir:* The Alloy came safely to hand. I am very well pleased with it. Very respectfully, DR. S. E. JONES.

ROCHESTER, N. Y., April 13, 1885.

H. W. PARSONS—*My Dear Friend:* The boxes of Amalgam were duly received, and I consider it very nice indeed. Respectfully Yours, DR. S. G. WOOD.

RICH HILL, Mo., Feb. 9, 1886.

DR. H. W. PARSONS—*Dear Dr.:* Yours of the 5th inst. at hand, and in reply would say your Eureka Alloy is the best I ever used. Respectfully, C. E. JONES, D.D.S.

COLUMBIA, Mo., March 16, 1886.

DR. H. W. PARSONS *Dear Sir:* I have used your Eureka Silver Alloy for one year, and am much pleased with it. I find its properties all that you represent them to be. Respectfully, DR. N. HOCKENSMITH.

7-6-00-½

W. C. JACOBS, MANAGER.

1-7-AN-½

CHERRY MALT PHOSPHITES.

This preparation is believed to be the only Malt Extract continuously acceptable to the stomach. The attention of those who have ceased prescribing other extracts of malt because of excessive sweetness is specially called to this.

CHERRY MALT PHOSPHITES is a combination of Wild Cherry, the condensed extract of the important Cereals and the Elixir of the Hypo-phosphites. Its flavor is delicious, and it is medicinally invaluable in all cases of General and Nervous Debility, Dyspepsia, Imperfect Nutrition, Impure Blood, Wasting Diseases of Children and Adults. It is extensively prescribed in European countries, and has received the cordial endorsement of the leading practitioners of this country

Price $1.00 per Bottle.

To Physicians not familiar with its merits, who will pay express charges, we will send a full-sized bottle *free*.

Please mention this journal.

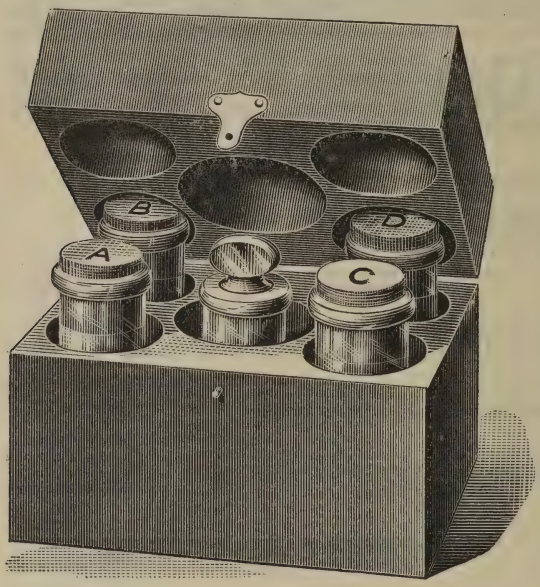
LIEBIG'S LIQUID FOOD,

A Concentrated Extract of Beef possessing both tonic and nutrient properties.

MANUFACTURED ONLY BY THE

LIEBIG PHARMACAL CO., N. Y.

SMITH'S ADAMANTINE PHOSPHATE CEMENT.



INSOLUBLE.

TWO COLORS.

Price, - - *$1.00.*

Also in Cedar Cases, as shown in cut, containing four colors of Powder and one bottle of Liquid, glass-stoppered.

A, White; B, Brown; C, Yellow; D, Bluish.

PRICE, - $2.00

SMITH'S

Oxychloride of Zinc.

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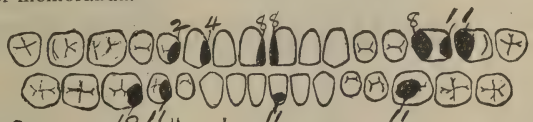

TUESDAY.
2. Mo 10

8	Miss Frailey	1	P.W. Peck
9		2	Edgar Thomas
10	Bertie Doak	3	
11	Mrs Harmon	4	Paul Ross
12		5	

The above is a facsimile of one day's work in the "Diagram Appointment Book;" the appointments are made as usual, and the fillings are accurately noted on the diagram. No ledger or other memorandum is necessary for immediate use; at leisure the work may be copied into the large ledger, if desired. After each persons name a note may be made of the amount charged or paid. It will be seen that it is easy to keep a record on this diagram of the work of this day, or of any day, by letting the hour of appointment stand for that person in the diagram; thus the figures 8 in the diagram stand for Miss Frailey, the 8 o'clock appointment.

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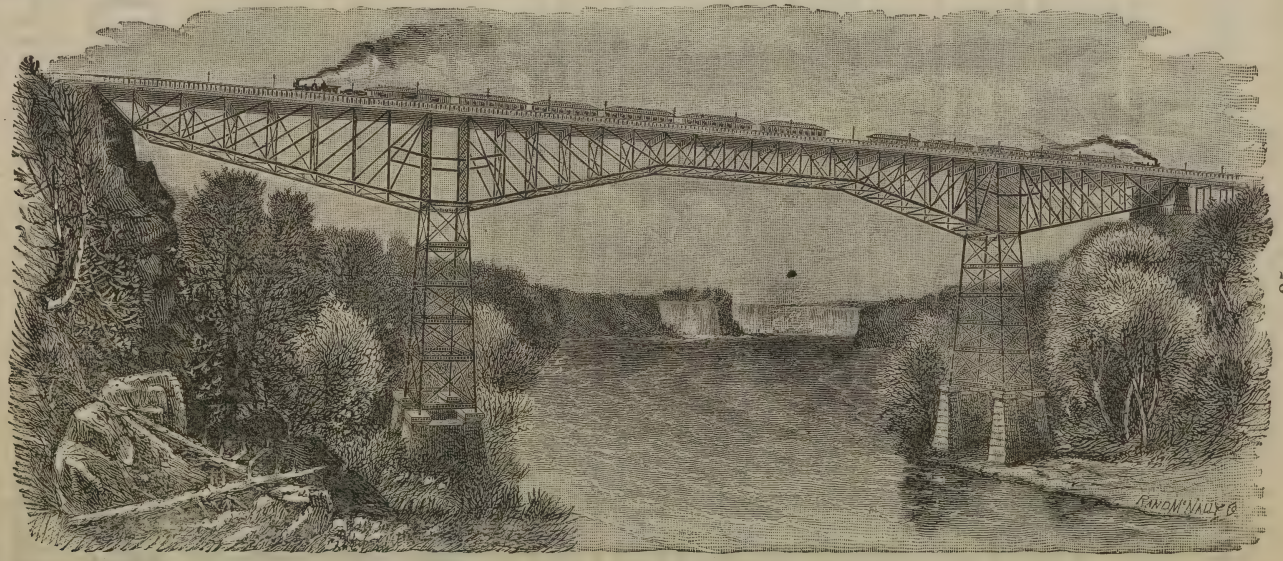

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Send for Essay and DISCUSSION before the British Medical Association at Brighton, England, 1886. (Essay) by the Vice-President of The American Medical Association and others on the value of Murdock's Liquid Food over all Foods and Extracts known, it being the *only* Raw Condensed Food, free from insoluble matter.

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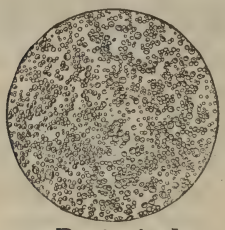

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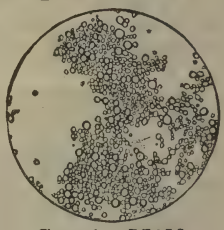

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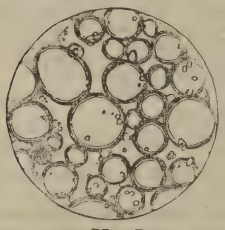

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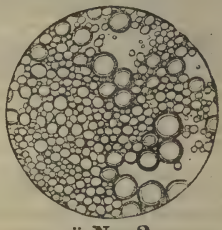

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Feb. 26, 1885. Fellow in the Johns Hopkins University, Sec'y Baltimore Micros'l Society.

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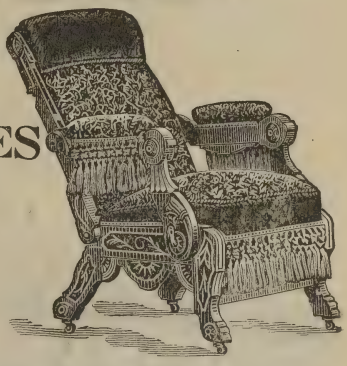

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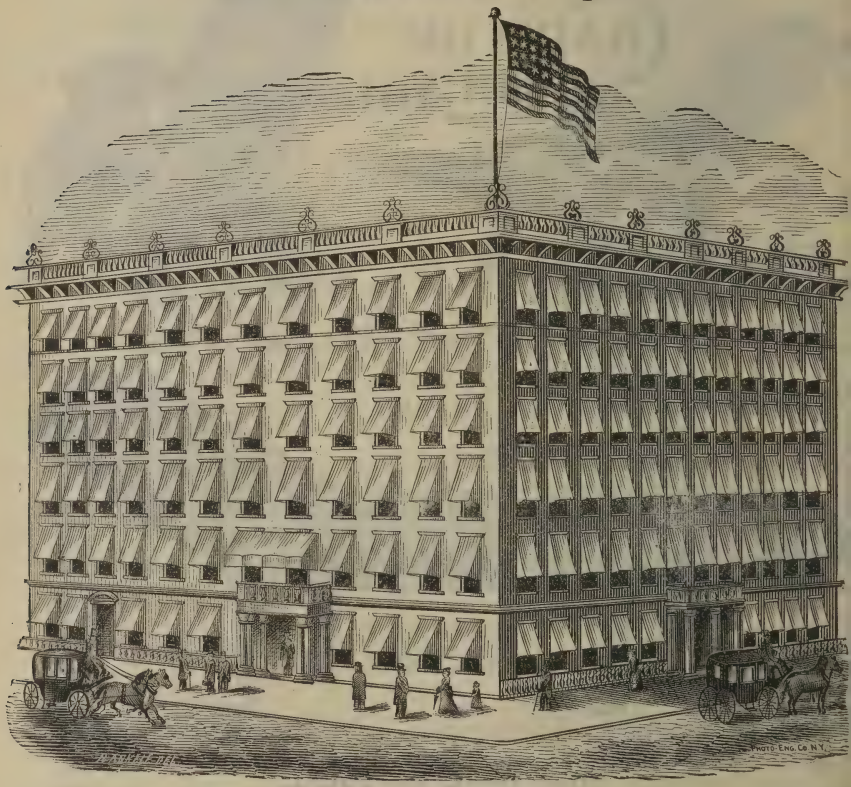

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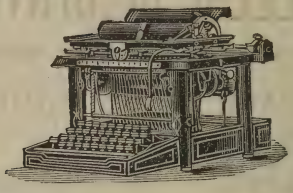

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A Monthly Journal

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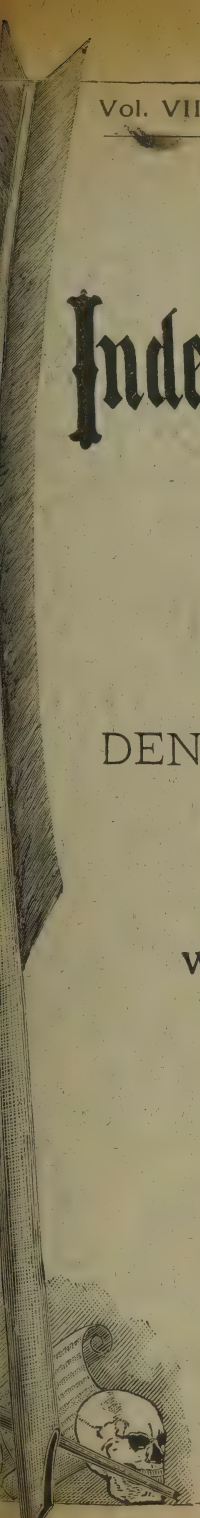

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Table of Contents—August.

ORIGINAL COMMUNICATIONS:

Contributions to the History of Devel pment of the Teeth. Carl Heitzmann and C. F. W. Bodecker 397
A Visit to Foreign Dental Schools and Other Observations. A. W. Harlan. 402
The Dividing Line. Frank W. Low 406
Hospital of Oral Surgery. Robert S. Ivy 411
Metallic Enamel Coatings and Fillings. C. H. Land 413

REPORTS OF SOCIETY MEETINGS:

Illinois State Dental Society 415
Minnesota State Dental Society 429

EDITORIAL:

Medical Recognition 430
New Remedies 433
Tooth Powders 434
The Association 435
Bibliographical 435

CURRENT NEWS AND OPINION 442

Index to Advertisements.

Horsford's Acid Phosphate....Cover Page 2
Charles H. Phillips Chem. Co.. " 2
Dr. Robert S. Ivy..... " 2
Underwood Spring Water..... " 3
R. S. Williams..... " 4
Listerine.....Adv. Page 1
A Sensitive Point ..... " 2
Announcement..... " 2
Detroit and Cleveland Nav. Co. " 2
The Medical Register ..... " 2
Seabury & Johnson..... " 3
Claudius Ash & Sons..... " 4 & 5
Acme Gold Foil..... " 6
American Dental Manuf. Co .. " 7
Murdock's Liquid Food Co.... " 8
Edward Rowan & Co..... " 9
C. A. Timme & Co..... " 10 & 11
Hardman's Amalgams..... " 12
Dibble's White Amalgam..... " 12
E. Kearsing..... " 13
Lawrence's Amalgam..... " 13
Wilmington Dental Mf'g Co.... " 14
Gasoline Furnace.....Adv. Page 15
Daly Gold Lining Dental Co.... " 16
Dr. Brown's Univ. Screw Clamp " 17
S. S. White Dental Manuf'g Co. " 18–23
I. W. Lyon..... " 24 & 25
Akron Dental Rubber..... " 26
Parson's Eureka Alloy..... " 27
Florence Mfg. Co..... " 27
J. H. Smith's Cements..... " 28
To Inventors..... " 28
Parke, Davis & Co..... " 29
A. J. Nickolds..... " 29
Vulcanizable Gold..... " 30
Welch Dental Co..... " 31
Ohio College of Dental Surgery " 32
Penn. College of Dental Surgery " 32
Minnesota Hospital College.... " 33
New York College of Dentistry " 34
Philadelphia Dental College.... " 35
Chicago College of Dent. Surg'y " 36 & 37
Dental Review..... " 38
Dunn's Medical Syringe ..... " 38

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Original Communications.

CONTRIBUTIONS TO THE HISTORY OF DEVELOPMENT OF THE TEETH.

BY CARL HEITZMANN, M. D., AND C. F. W. BÖDECKER, D. D. S., M. D. S.

CONTINUED FROM PAGE 349.

III. DEVELOPMENT OF CEMENTUM.

Our researches on the history of the development of the teeth extend over a period of eight years, and a large collection of specimens has been at our disposal. Nevertheless, until recently, we hesitated about saying anything upon this topic, as none of the specimens of which we were then possessed showed anything of interest concerning the development of cementum. This tissue, in human beings, is obviously developed after birth, when the root and its dentine have been fully formed. We know that at the time of birth only the crowns of the temporary teeth are present, but no trace of the roots. At what time the tissue in question begins to appear in the human subject, the writers are unable to state. The only specimens at our disposal, in which the question of the development of the cementum could be studied, have been obtained

from the lower jaw of a kitten about six weeks old. As the history of the development of dentine and enamel is almost identical in cats and men, we feel justified in the assumption that the formation of cementum is likewise identical. We are the more confident because of the knowledge that the development of bone exhibits the same features in cats as in men, and because, as is well known, cement is nothing but bone tissue.

In the above mentioned specimens from a kitten six weeks old, we observed both the temporary and permanent teeth in situation. The temporary teeth were fully developed and their roots perfect, whereas the permanent teeth only exhibited a small cap of dentine and enamel over the papilla, corresponding to a human fœtus that is between the seventh and eighth month of intra-uterine life. Both the dentine of the crown and that of the root, especially of the latter, were partly absorbed and exhibited bay-like excavations, which were filled with multinuclear protoplasmic masses.

The cement at the cervix of the teeth in cats is a comparatively narrow formation, made up, like that of men, of delicate spindles arranged vertically to the longitudinal axis of the root, between which we observe no cement corpuscles. This layer is evidently developed from spindle-shaped medullary corpuscles, of which a whole row is visible in the neighboring pericementum. A direct calcification of these medullary corpuscles leads to the formation of the cementum of the neck. Further down, the cementum becomes broader by the addition of a row of medullary corpuscles greatly varying in size, and without distinct lines of demarcation between them. With lower powers of the microscope their protoplasm appears finely granular; with high powers, however, a distinct reticulum is recognizable, the same as in all protoplasmic formations. Toward the dentine the medullary corpuscles assume a high grade of refraction, indicative of a deposition of lime-salts, which latter have been removed by the treatment with the chromic acid solution. The boundary line between the dentine and cementum is nowhere distinctly marked. Still further down toward the apex of the tooth, scanty cement corpuscles make their appearance, invariably surrounded by a number of finely granular medullary corpuscles, without any marked territorial formation around each bone corpuscle. Nearer to the apex the cementum becomes very broad, exhibiting a number of cement

corpuscles. Here this tissue is fully developed around the dentine, but is yet in the process of formation at the periphery of the root. The latter portion plainly reveals the manner in which the cementum is developed.

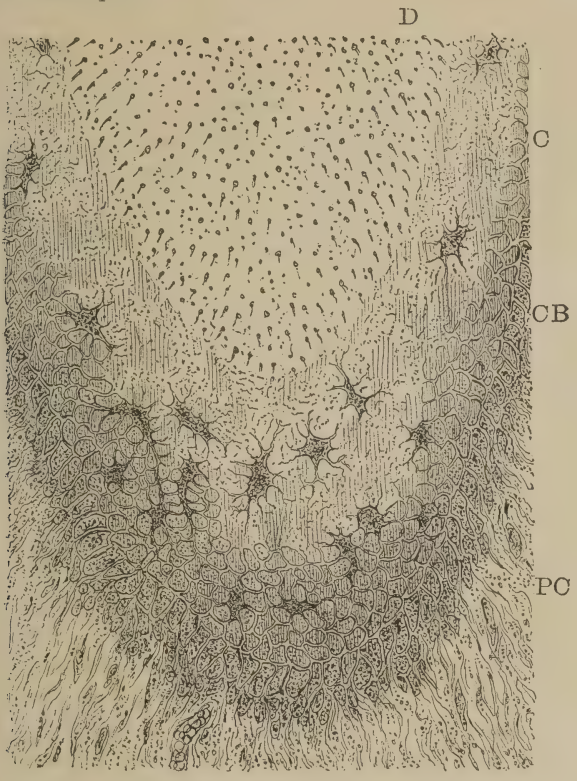

FIG. 19. *Apex of the root of a temporary tooth of a kitten six weeks old. Vertical section.*

D. Dentine.
C. Cementum, in part thoroughly calcified, and partly made up of medullary corpuscles.
CB. Basis-substance of the cementum composed of medullary corpuscles.
PC. Pericementum.

Magnified 200 diam.

Like all the tissues of the body, including the dentine and the enamel, the cementum arises from medullary tissue. In this respect cementum and bone tissue show a striking coincidence. The medullary corpuscles from which bone tissue arises bear the name

of osteoblasts, and should any one desire to give a special name to the formers of the cementum, that of cementoblasts should be admissible. These corpuscles become the seat of a deposition of lime-salts before any cement corpuscles are conspicuous. We observed that the previously calcified medullary corpuscles are decalcified, and after a second calcification some of them remained unchanged, exhibiting an angular shape characteristic of bone and cement corpuscles. This stage, however, still represents an incomplete form of cementum. Lastly, another decalcification of the medullary corpuscles takes place, and this time distinct groups of medullary corpuscles become visible, the centers of which are occupied by the cement corpuscles, and in this manner the territories of the cementum as well as those of bone tissue arise. After calcification of the medullary corpuscles has been accomplished, neither the medullary corpuscles nor the boundary lines of the territories are conspicuous; but when calcification is incomplete, both the medullary corpuscles and the territories are easily recognizable.

With high powers of the microscope we more readily observe the manner in which the cementum is developed. As long as this tissue is imperfect, and not fully calcified, a number of the medullary corpuscles assume a certain degree of refraction which designates partial calcification, whereas some of the medullary corpuscles retain their protoplasmic nature, and thus represent the cement corpuscles. Nearer to the dentine the medullary corpuscles are arranged in clusters, in the center of which we observe the cement corpuscles. As a rule, each cement corpuscle is surrounded by a number of medullary corpuscles representing a territory. Not infrequently a territory is indistinctly defined, and this is the case wherever the cement corpuscles are separated from each other by a single row of medullary corpuscles only, or where the deposition of lime-salts has been completed, when both the medullary corpuscles as well as the boundary lines of the territories, are lost to sight. (Fig. 20.)

The question arises, how are the offshoots of the cement corpuscles formed ? In order to understand this process, we must bear in mind that the medullary corpuscles, even when incompletely calcified, exhibit the reticular structure characteristic of all protoplasmic formations. They greatly vary in size and are separated from one another by light rims, which invariably appear traversed

by delicate conical offshoots. It is obvious that the offshoots are formations of living matter, serving for the inter-connection of all medullary corpuscles. Whenever lime-salts are deposited in the meshes of the reticulum of the medullary corpuscles, the interstices between them remain free from such a deposit. The conical offshoots between the medullary corpuscles coalesce in their centers

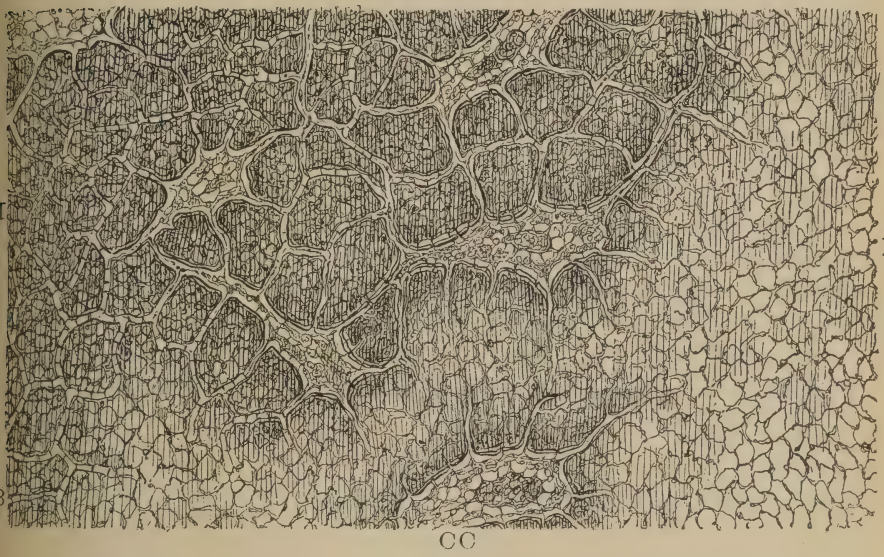

FIG. 20. *Cementum in the process of formation of a temporary tooth of a kitten six weeks old.*

M. Medullary corpuscles incompletely calcified, but still recognizable.
MB. Medullary corpuscles in part thoroughly calcified and transformed into basis-substance.
CC. Cement corpuscles partly lying in a completely calcified basis-substance, and partly occupying the centers of groups of medullary corpuscles, the so-called territories.
B. Basis-substance.

Magnified 1,200 diam.

into a filament of living matter—the offshoot of the bone or cement corpuscle. Such a delicate offshoot remains inter-connected by the lateral filaments running into the reticulum of the medullary corpuscles, the same as is the case with dentine and enamel fibers. Even where the calcification of the medullary corpuscles has assumed its highest degree, and where all boundary lines between them have disappeared, the reticulum in the basis-substance remains unaltered, and plainly visible with a good immersion lens, without the addition of any re-agent.

The results of our researches concerning the history of development of the cementum of the temporary teeth of a kitten six weeks old are as follows :—

I. The cementum arises from medullary tissue, the same as bone and all other tissues of the body.

II. The medullary corpuscles first become the seat of a deposition of lime-salts before any cement corpuscles are visible.

III. The lime-salts are dissolved and re-deposited again in the medullary corpuscles, which are arranged irregularly around the cement corpuscles, the latter, however, remaining free from calcareous infiltration.

IV. Still later the medullary corpuscles are arranged in groups, the centers of which are the cement corpuscles, the sum total furnishing the territories around the cement corpuscles.

V. The offshoots of the cement corpuscles are filaments of living matter, originating from the bridges traversing the interstices between the medullary corpuscles.

VI. The reticular structure of the original medullary corpuscles is preserved in the basis substance even after the completion of the calcification of the latter, and the disappearance of the original medullary corpuscles.

(TO BE CONTINUED).

A VISIT TO FOREIGN DENTAL SCHOOLS AND OTHER OBSERVATIONS.

BY A. W. HARLAN, M. D., D. D. S., CHICAGO, ILL.

(Continued from page 611, Vol. VII.)

France is so different from other foreign countries that a visitor usually spends most of his time in Paris. On previous occasions I had passed a few brief hours in other portions of the country, but most of my observations have been made during several visits to Paris, the home of many American dentists.

Away back in the "thirties," American dentists began practice in Paris, and now there are few cities in France with a population of one hundred thousand and upwards, where they are not to be found. Indeed, I believe there are several Americans in cities even smaller than that. I do not know the exact number, but it is my

belief that there are from thirty to fifty English speaking dentists located in Paris. Of all those which I have visited, Paris seems to be more favored in this respect than any other continental city. I presume that many are drawn thither by the reports of the fabulous incomes of the few who have been long established in practice. From my own observations, I believe that many of the practices are overestimated in the net incomes received, as there are few, if any, that yield as much as fifty thousand dollars per annum (250,000 francs).

When they take into account the cost of living in a foreign city—house rent, supplies, taxes, etc., entertainment of visitors (like myself) and other expenses—probably there are not more than a dozen who can save above ten thousand dollars a year. The American dentist living in Paris is, of course, glad to see other Americans, but there are so many who visit Paris that it must be very tiresome to see and entertain many, who only come to visit—out of curiosity—those who are so located. Besides, they take up valuable time, and he must be very methodical indeed who can and will insist on being seen only after office hours. I was very glad to be taught such a lesson once by a prominent dentist in Paris, who sent word to me that he could only be seen before nine in the morning and after four in the afternoon, unless I had business with him. This I have not forgotten. We could profit by such a method at home, as it would enable us to accomplish much more in a day than can be done as things now are.

One Sunday morning I visited the Hospital and *Ecole Dentaire* of Paris, and was shown about the clinic rooms by M. Ch. Godon and Dr. Levett, the professor of operative dentistry. This school is the oldest in Paris, and it confers a diploma (D. E. D. P.) after a three years' course of study. At present the quarters at 23 Rue Richer are too small, and I was told that very soon they would remove into a more commodious building. The students were at work, occupying all the available chairs, using gold and other materials, rubber dam, etc. Everything was clean and orderly, and I was very favorably impressed with the workings during that morning. The students are required to spend some time in working with metals, ivory, steel, etc., that they may acquire dexterity in handling instruments. This is an important item in the education of a dentist, and much to be commended.

The candidate for a diploma must be twenty-one years of age, have attended three courses of lectures, deposited his specimen case, submitted to a preliminary examination, unless he be a doctor of medicine, an *officier de santé,* or has a diploma as midwife, when he or she can enter the second year's course of the school. The dental college is not a stockholder's property, but was founded by subscriptions, and aided by the city of Paris. I was told that they had about 150,000 francs toward a permanent building (which fund has been increased), and this they will shortly occupy. There are a number of distinguished medical men and surgeons of Paris connected with the school, either as consultants, lecturers or professors. The school is in a flourishing condition, and had more than a hundred and twenty-five students last year. At present the diploma is not recognized by the State, as there is practically no law regulating dentistry in France. Any one may practice, I believe, by putting up a door-plate and announcing himself as a dentist. This is to be regretted, from the fact that medicine and surgery, and veterinary medicine also, are regulated by the Republic. In addition to the dental school and hospital, the Odontological Society of France meets in the college, also a dental benevolent society, and the faculty publish a journal—*L'Odontologie*—a monthly publication. This is a live journal, and I find something of interest in it every month. I have read it since its first issue, and I advise every one who reads French to do likewise, as it is only by comparison that we are able to finally judge of results. I wish the institution the support it justly deserves, and when again I visit France I hope to visit the new college building, and learn that the school has been endorsed by the State.

I was unable to visit the *Institut Odontotechnique,* which is the new school in Paris, but from a view of the outside I presume they have comfortable quarters, and a glance at the teaching corps will show that there are several well-known names in the faculty, which is an assurance that they do good work. The new college publishes a journal also, the *Revue Odontologique. Le Progres Dentaire* and *L'Art Dentaire* are the only other dental journals of any consequence in Paris. My criticism of the dental journals would be that they contain too many translations of feeble efforts published in English or German, and too little of original matter. Of late, however, they have been doing much better, and very soon

I look for a still greater improvement on account of the increase of graduates from the dental schools.

France is the home of more original *brochures*, pamphlets and works on dentistry, than any other country in the world, and the professional activity is only just being awakened. I was told that there are several well-known French dentists who have more calls on their time than they can possibly attend to, and that the incomes of some exceed 100,000 francs per annum, which I am sure must be so. Until recent years the bane of French operative dentistry has been the use of amalgams and cements, and the lack of thoroughness in filling roots. Indeed, many French dentists never think of filling a root when a tooth is to be replanted or a crown is adjusted, and many destroy the pulp and leave it in the tooth, fill the cavity and bore a vent-hole.

Too little time is spent in the preparation of cavities, and gold fillings, when inserted, are poorly done. These things will soon disappear as the new men enter the ranks and the old ones retire. The French are good artificers, and some of the most beautiful specimens of prosthetic dentistry that I have seen were made by French mechanical dentists. Too many French dentists use anæsthetics, and consequently many teeth are extracted that we at home would save. In the way of instruments and appliances they have as many as we, and all of ours too, to select from.

A thing that disgusts almost any dentist is to see the way in which some Americans, or people who call themselves such, mutilate the teeth of their countrymen or of any others who happen to fall into their clutches. What would we think of a dentist (?) at home who would solder a few teeth on a bar of platinum and then bore holes through living teeth, stick the ends of the bar through them and cement this bridge with oxy-phosphate, and call it permanent bridge-work ? It is such operations as the above that bring reproach on American dentistry in Europe, as much as the bogus or unearned diplomas. The sooner they have a regulation of the practice of dental surgery in France, the better it will be for all concerned; then such Americans will be forced from practice, and all other foreigners as well as natives. I have great faith in the sincerity of the French dentists, and believe that they will work out the problem of conservative dentistry if they only have the moral support and encouragement of their confrères in other countries. The

members of the two principal societies are doing good work, and while they do not quite agree with each other in the proposed manner of regulating the practice of dentistry in France, or the method of instruction of dental students, still the good results will follow. The discussions in the two societies, while too much taken up with extraneous matters, are beginning, from the reports which have reached me in the two official journals, to take a more elevated tone, are more serious in fact than they have ever been before. The hospitality of the Frenchman is a thing which to me is incomparable. I had always been taught to believe that they were all selfish and without consideration for others. I found the reverse to be true. Almost a stranger, and little known, I was everywhere treated with the utmost cordiality, and friendships were formed which I am sure will endure forever. I hope at some time in the future (perhaps when there will be assembled an International Dental Congress) to reciprocate the many courtesies and acts of friendship heaped upon me by my confrères in France, and expect to welcome a number in Washington next September.

Americans are too prone to think that everything good or useful was invented or discovered at home, but if they would only read a little more, and travel with their eyes open, they would soon find that in many respects we have much to learn before perfection is attained, in art as well as in science, and a visit to France would be not the least enjoyable journey that an American dentist could undertake.

THE DIVIDING LINE.

Read at the Annual Meeting of the Eighth District Society, held in Buffalo, April 19 and 20, 1887.

BY DR. FRANK W. LOW.

"What an unaccountable thing, my friends," said Socrates on the morning before he drank the hemlock, "that seems to be which men call pleasure, and how wonderfully it is related to that which seems to be its contrary, called pain, in that they will not both be present to a man at the same time. Yet if a man pursues and overtakes the one, he is compelled to accept the other as if they

were both united together to form one head." * * * "I suffered pain in my leg before from the chain, but now pleasure seems to have succeeded."

Pain is the shadow of pleasure, and never far from it. Indeed, by it we are sometimes made aware of the approach of pleasure, just as we are of the coming burst of sunshine by the scudding shadows that announce a breaking cloud. In a case of cholera morbus, as the pain of the agonizing cramp subsides, one realizes a sense of exquisite pleasure, like to nothing so much as an approaching burst of sunshine.

How can it be accounted for, that in one instant the same nerves can be made to thrill with sensations thus diametrically opposed to each other, kaleidoscoping the one into the other in such manner as to make it utterly impossible to draw the dividing line.

The apparent Siamese relationship of these twin sisters—pleasure and pain—is a problem that has challenged the thought of great minds in every age, from the days of Socrates to the present. A limited knowledge of metaphysics, coupled with considerable thought and the splendid opportunities for observation afforded at an operating chair, have led me to the following conclusions:

First—That all nerve impulse is transmitted like the forces of nature—light, heat, electricity and sound—in undulatory vibrations.

Second—That all nerve impulses transmitted from the terminals of the sensory nerve fibers are recognized at the ganglionic centers of sensation as either pleasurable or painful.

Third—That whether pleasurable or painful depends upon the intensity of impulse imparted to the nerve vibrations.

Upon these hypotheses I shall attempt to explain a few of the more remarkably peculiar manifestations of these sensations which have happened to come under my personal observation.

Independent of physical sensation, the mind is capable of experiencing emotional pleasure and pain. It is even capable of experiencing either of these, and at the same time its opposite physical sensation. Hope is a pleasurable emotion. Eminent surgeons agree that hope stimulates many a delicate young mother to bear the pains of parturition, who otherwise might have died of sheer exhaustion consequent upon prolonged labor pains.

Anger is a painful emotion, but there are women in whom, ordinarily, it is next to impossible to provoke the slightest sexual feel-

ing, but who, under the excitement of intense anger, experience the liveliest erotic sensations. These metaphysical phenomena are in some degree above and beyond our explanation, but it is not improbable that while some of the centers of sensation in the brain are receiving impulses from terminal cells which are recognized as painful, the evolution of the mind should cause in other centers as pleasurable emotion. Leaving these out of the question then, let us return to the argument. Though recently vigorously opposed by another school of thinkers,* in support of my first proposition I must urge that it is the generally accepted theory that undulatory impulse is the law governing the forces of light, heat, electricity and sound. Recent writers even hold it to be the law of the forces of development. Now, as nerve force is demonstrated to be of the nature of electric force, it is fair to suppose it to be governed by the same law.

My second proposition, that all physical sensation is in some degree either pleasurable or painful, is, I believe, the universally accepted theory of metaphysics.

My third proposition, that whether pleasurable or painful depends upon the intensity of impulse transmitted, is a theory, so far as I know, never before advanced, to prove which shall be the labor of this essay.

It is the only theory, I think, that can be accepted in explanation of such phenomena as we are about to consider, while it is, I am equally sure, sufficient to explain any and all the phenomena of physical pleasure and pain. Why did Socrates suffer pain from the chain, and afterwards experience the sensation of pleasure? Why was the sensation following the cholera morbus cramp so pleasurable to me? Why is it that upon recovering consciousness after anæsthesia, occasionally a woman will accuse the operator with having taken improper liberties with her person? The anæsthesia cannot be accountable for this phenomena, else would it be presented when the operation was elsewhere than upon the teeth, and I half believe I might still further limit the occurrence to operations upon the teeth of the lower jaw. When not under the influence of an anæsthetic, in operations upon the inferior cuspid, bicuspid or molar teeth, why is it that if the interglobular spaces between dentine and en-

* Problem of Human Life. Substantial Philosophy etc., etc. A. Wilford Hall, Ph. D., LL. D.

amel are encroached upon the resultant paroxysm of pain is sometimes quickly followed by the liveliest sexual sensation?

That this is the experience of some women, I know; that it is the experience of many, I believe.

In the explanation of one of these phenomena we have furnished the key to the explanation of them all. According to the most generally accepted theory of atoms, not one in all the universe is ever still. The sources of heat—chemical, electric and solar—are sufficient, were there no other cause, to keep them constantly in motion. If one end of a bar of iron is thrust into a forge it soon becomes red hot. The atoms are vibrating with great intensity, and the bar expands to make more room for them. Yet could a particle of this metal, still glowing hot, be fixed beneath the glass of the most powerful microscope, we are told the vibration of the atoms would still be invisible. They do not change their relative positions in the bar, but each imparts its vibratory motion to its neighbor by contact.

Like to this bar of iron are our sensory nerve fibers. When the proper stimulant is brought in contact with a terminal atom, it is impelled to vibrate. If the stimulant be mild the vibration is slight, and the neighboring atom is gently jostled to vibrate in unison. Nerve force being more susceptible to impulse than the atoms of a bar of iron, the vibrations are more rapid, but by the same law of contact, and thus the centers of sensation, whether they be in ganglion or brain, are finally awakened. Was the stimulant delicate? The vibrations are gentle and the sensation is pleasurable. Had the stimulant been more intense the result would have been pain instead of pleasure.

A bar of iron is inorganic, and its atoms are incapable of tiring. If you continue to apply any degree of heat the vibrations will correspondingly continue, as is proven by the intensity of the brightness of the glowing rod. Nervous force pertains to organic matter, and its susceptibility may be exhausted. Although the degree of stimulation may remain unchanged, the vibratory impulse will sometimes gradually diminish, or suddenly cease altogether, from sheer exhaustion of the terminals. In one case we have pain gradually fading into pleasure before sensation ceases; in the other it suddenly ceases altogether. Death is sometimes caused by this sudden cessation—as, for instance, in fatal cases of angina pectoris.

There is no organic lesion of the heart, but simply paralyzation of the terminals of the pneumogastric nerve. They vibrate with such intensity that the acme of all pain is reached. Suddenly, from sheer exhaustion, the sensory terminal filaments cease to act, and the spur to the motor impulse being removed they refuse longer to cause tension and relaxation of the muscular heart fiber, and death ensues from its cessation.

It is a legitimate inquiry why pain inflicted upon a terminal cell of the inferior dental nerve should cause pleasurable sensation, especially in so remote a region as that of the sexual organs. A portion of the sensory impulse as it is impelled along the tract of the inferior dental nerve is switched off, as you might say, at the otic ganglion, and so sets to vibrating the sympathetic tract, and the phenomena of pleasurable instead of painful sensation in sympathy is accounted for, because it is a peculiarity of the sympathetic plexus* "that while it is endowed both with sensibility and the power of exciting motion, these properties are less active than in the cerebro-spinal system, and are exercised in an entirely different manner." An impulse, which in the dental nerve is sufficient to cause intense pain, becomes, by reflexion to the sympathetic, transmitted into a sensation of pleasure, while the slightest discomfort appreciable at the terminals of the latter is ofttimes magnified into the most painful neuralgic complications of the fifth pair. The eminent doctor Putzel says, in his recent work on functional nervous diseases,† of the causes of Trigeminal Neuralgia, "disorders of the genital organs and of the intestinal tract may also be enumerated." * * * "Sexual excesses are also injurious and very frequently act as the exciting cause."

Who will tell us why it is that we so often cry for joy, or that intense misery so frequently induces hysterical laughter? "The same nerves that thrill with pleasure thrill also with pain." "The same avenues that permit pleasure to enter the soul permit pain also to enter," and however assiduously these phenomena have been studied, it remains to science an open question still, where is the dividing line?

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* Human Physiology, Dalton, page 499.

† Functional Diseases, Putzel, page 125.

HOSPITAL OF ORAL SURGERY, PHILADELPHIA.

CLINIC OF PROFESSOR GARRETSON.

REPORTED BY ROBERT S. IVY, D. D. S.

MUCOID ENGORGEMENT OF THE ANTRUM.

The patient, a lady, complained of fullness of the cheek, neuralgic pains, and tenderness of the roof of the mouth on the left side. Roots of diseased teeth, molars or bicuspids, which pierce the sinus, from contiguity of the peridental membrane and the mucous lining of the cavity, are frequent causes of such trouble as the lady complained of. Examination of the mouth, however, excluded such cause in this case, as it revealed an unbroken alveolar ridge from the cuspid tooth to the tuberosity, all the teeth having been extracted some years previously. Attention was then directed to the natural opening from the sinus into the nares, which was found to be closed, the patient complaining of constant dryness of the nostril, readily accounted for by the lack of mucous discharge from the antrum, caused by the closure of the orifice. She also stated that an opening had been made into the bone twelve months previously, near the canine tooth, when she was suffering from a similar trouble. Inferring from this that the opening then made had become closed, a bistoury was thrust through the wall of the cavity in the region of the canine fossa, resulting in a muco-purulent discharge, the feeling of distention being immediately relieved. Through the opening thus formed the cavity was thoroughly cleansed by injections of dilute phenol-sodique, the treatment being continued daily for one week, the opening being meanwhile retained with a tent of cotton.

Remarking on the frequency of antral disease, the professor said that when of strictly local origin it is easily treated. When caused by a diseased tooth, with an abscess discharging into the sinus, the indication is to extract the tooth, thus forming a fistula by which the pus or other secretion can be removed, and at the same time an opening by which stimulating injections can be made. Such injections consist of phenol, carbolized water, or dilute tincture of iodine. Where the trouble has been allowed to continue, and the secretion has caused the lining membrane of the cavity to

break down and ulcerate, injections of chloride of zinc, combined with one dram zinc sulphate and one pint of water, have proved very efficient.

A common cause of engorged antrum is catarrh of the Schneiderian membrane. A person takes cold and the inflammation of the lining membrane of the nares, by relation of continuity, extends into the sinus, which becomes congested to such an extent as to close the outlet. Under such circumstances the patient complains of a sense of heaviness in the cheek, attended by soreness of a dull, sluggish character. A mode of treatment often satisfactory, when the trouble is in its early stages, is to administer a saline cathartic, or better still to break up a limited congestion, give the patient at bed time one-sixth or one-quarter of a grain of sulphate of morphia dissolved in an ounce of liquor ammonia acetatis. Where the disease has advanced to engorgement, it is generally found necessary to open, as in the case under notice, or to extract the first or second molar, preferably the second, and to penetrate the sinus through the alveolus of the palatine root.

LINGUAL EPITHELIOMA.

Mr. A., a gentleman sent to the clinic from California, upon examination presented expressions characteristic of epithelioma of the tongue, the disease involving two-thirds of the left side. In appearance the growth was of a purplish red color, having associated with it the giant granulations and indurated edges so frequently met with in epithelioma of a cancerous nature. The patient said he first noticed a slight soreness six months previously, apparently caused by ragged edges of some of his teeth. These were rounded off, but the abraded surface gradually enlarged, threatening to infiltrate the remainder of the tongue. Radical extirpation of the growth being desired, it was decided to remove a section of the organ, surrounding and including the growth, by the ecraseur. The first step was to distend the jaws, a screw-gag being placed between the teeth on the side opposite the seat of operation. A strong silk ligature was next passed through the anterior portion of the tongue, enabling an assistant to draw it forward into a more convenient position for operating. A bistoury was next thrust through the healthy tissue from the under side in the direction of the raphe, and this was followed by a piece of common annealed wire. A

second wire was placed slightly anterior to the first, and the ends of each attached to ecraseurs, the triangular section contained within the wires, when tense, included the diseased tissue. Pressure being put upon the handles of the instrument, the wires were tightened and the growth gradually severed from the surrounding tissue, the operation being completed by cutting away the small attached portion between the insertion of the wires. The time occupied in the retraction of the wires was about fifteen minutes, the hemorrhage by this means being reduced to a minimum. Owing to the extraordinary vitality of the tongue, the time occupied in recovering from such severe operations is short. In the case described, the patient was discharged from the hospital after eight days, no trace of the operation being perceptible.

METALLIC ENAMEL COATINGS AND FILLINGS.

Read before the Central Dental Association of Northern New Jersey.

BY DR. C. H. LAND, DETROIT, MICH.

In the absence of practical demonstrations it is difficult to comprehend all the advantages brought about by improvements. The accompanying engravings, Figs. 1 and 2, are taken from practical cases that have at this date been in use for one year. In the case represented by Fig. 1, the patient was about sixty years of age. The right lateral incisor was prepared with a Howe post, shown in its relative position. The five remaining teeth, after the cavities were prepared, contained tooth substance as represented by the dark surfaces, the white representing the lost portion of each tooth, restored with sections of porcelain made to imitate the exact color and contour of the original tooth substance. The cavities are prepared as for gold filling, when a thin piece of annealed platinum plate, No. 35 standard gauge, is placed over the tooth, and by means of burnishers made to take a perfect impression of the outer rim of the cavity, after which platinum pins are attached, as shown

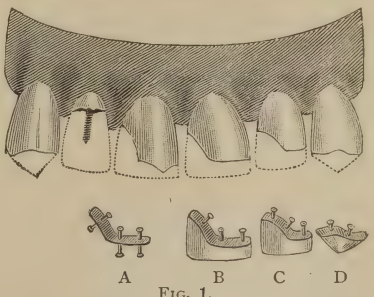

Fig. 1.

at A. The object of the pins is to serve as a fastening, both for the porcelain paste or body and as retainers to hold the completed section in the cavity of the tooth. The porcelain paste or body is built upon the platinum disk and made to imitate the lost portion of the tooth. It is then baked in a gas furnace, requiring but twenty minutes for the first biscuit and fifteen for the second, and when finished it appears as shown at B, ready to be cemented with oxy-phosphate. C and D are modifications for the other teeth, and Fig. 2 illustrates porcelain facings for molars.

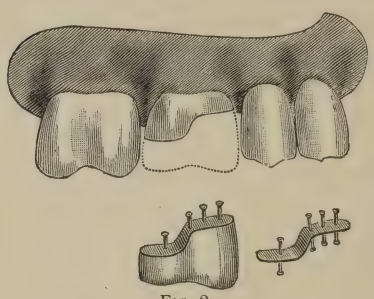

Fig. 2.

The especial feature of this system, to which I wish to call your attention, is the large amount of tooth substance preserved above the gum, there being no necessity for telescoping the root so far below as to sever the tissues. This mode of practice also dispenses with the long operations and protracted use of the rubber dam; it almost entirely obviates the use of amalgam, and saves the necessity for large gold fillings; there is no malleting, no long and tedious operation either for the patient or dentist, while at the same time teeth are perfectly restored, both in appearance and usefulness.

There is another advantage in the use of the enamel coatings which is not, in my opinion, a trivial matter. When large metallic fillings are inserted, the constant thermal changes consequent upon their alternate heating and cooling must exercise an unfavorable influence upon the tissues about the tooth. Even if the pulp be dead and the root be filled, there will be a checking and fracture of the tooth in time, from the continually varying changes of temperature. An inflammation of the membranes will also be likely to occur from the same cause, and thus the tooth will in time be lost from the mere influence of the presence of a large mass of metal.

It is also a fact that large gold fillings cannot be inserted without so much malleting that the strength of the tooth is gone, and frail walls are cracked beyond the possibility of repair. These dangers are all obviated by the use of the porcelain facings, while teeth so restored are much more natural in feeling and more grateful to the touch of the tongue than any metallic filling can be.

Reports of Society Meetings.

ILLINOIS STATE DENTAL SOCIETY.

Reported for the Independent Practitioner by E. E. Cady, D. D. S.

(Continued from page 376)

THURSDAY MORNING SESSION.

This was devoted to clinics and the exhibition of instruments, etc. Dr. C. F. Matteson, the supervisor, reported the successful operations performed at previous meetings for members present. Dr. Louis Ottofy implanted two teeth, for different patients, with every promise of success. Dr. W. B. Ames demonstrated the use of electricity in the treatment of pyorrhœa alveolaris, and succeeded in convincing many who witnessed his clinic that whatever the result, his theory is at least plausible. Dr. J. A. W. Davis exhibited an electrical apparatus for the painless extraction of teeth, but operations illustrating its use were not uniformly satisfactory.

THURSDAY AFTERNOON SESSION.

Dr. Black was called upon for his report on inoculation, and said: In gathering material from the mouth it is best to use a strong platinum wire, melted into a glass handle, with the end flattened and bent into a loop. This is sterilized by being brought to a glow in a Bunsen flame, and when cool is touched to the mucous membrane of that part of the mouth from which we wish to make a plant. Having done this, a tube of broth is quickly uncorked, the wire thrust in, the tube shaken and the cork replaced, observing care lest the latter, when removed from the tube, does not come in contact with anything. The tube is now replaced in the incubator, where the growth will develop in twenty-four hours. From this, plants may be made to dry plates for separating the species, in the following manner: Prepare four or six ordinary glass slides by cleansing thoroughly and heating over a Bunsen burner sufficiently to scorch cotton, and allow them to cool. Two or three gelatine tubes are then warmed sufficiently to render the gelatine limpid. The first of these, marked No. 1, is planted by dipping the collecting wire into broth-culture and transferring a drop to the tube, which is then thoroughly shaken to distribute the microbes throughout the mass of gelatine. From this

gelatine, tube No. 2 is inoculated in the same manner. From No. 1 a few drops are poured on two of the prepared plates, and distributed evenly over the surface with the previously-heated platinum wire. From gelatine tube No. 2, two more glass plates are prepared in the same manner.

These are now placed in the moist chamber and allowed to remain one or two days for colonies to develop. Sometimes it will be found necessary to carry attenuation to a third tube, in order that colonies may be sufficiently distributed on the plate for easy work in removal. At the end of twenty-four, thirty-six or forty-eight hours the plates may be examined by the microscope, and when the colonies are sufficiently developed they should be transferred to broth-tubes. This is a very important and delicate procedure. A platinum wire of sufficient stiffness is melted into a glass handle, the point reduced and bent at a right angle to form a short hook. This is sterilized in the usual manner. A colony is selected and the point of the wire passed under the lens and over the colony. With the eye at the eye-piece of the microscope the movements of the wire are directed, and the point is brought into the centre of the colony. This rod is then quickly transferred to the broth-tube, with the gelatine and microbes adhering to its point, and is given a shake, removed, and the tubes closed and placed in the incubator. This will give a growth of microbes, all of which have developed from a single cell.

This operation is repeated until each variety appearing upon the plate is transferred to separate broth-tubes. These will develop in different lengths of time, according to habits of the various species, and their growth in broth may be studied.

To obtain growth in gelatine, I pursue the following method: Remove the rubber cover from the mouth of a gelatine tube, and start the cork out by twisting, holding the tube bottom end up between the thumb and finger. Now place the tooth-growth between the same thumb and finger, with the top uppermost. A fine, straight platinum wire (prepared and sterilized as just mentioned) is used, and while cooling the corks from both tubes are removed and held between the fingers. The wire is passed into the tooth-growth, and then pricked through to the bottom of the gelatine. It is again dipped into the tooth-growth, passed into the gelatine tube, laid upon the sloping surface and withdrawn. The corks are now re-

placed, the mouth of the gelatine tube again covered with rubber, and it is laid away in an inclined position to develop. The anærobic microbe will grow about as well within the gelatine as on the surface, but the strictly ærobic will not make much development when excluded from free oxygen.

In making those cultures many "weeds" will be found interspersed with the growths of the mouth. We are passing about through the atmosphere and breathing it in, and the microbes afloat are continually lodging in our saliva. This latter is a good culture fluid, therefore we collect a great variety. The most of these are non-residents, and do not properly belong in the mouth. A few varieties, however, are found there almost continually, and these we may properly call residents. The former we may denominate weeds, but the latter seem indigenous to the soil, and are continually pushing out the intruders. Of course, in making cultivations from the mouth we may, in time, separate a great number of species of microbes, but we can only designate those habitually found in the mouth after repeated cultivations. The rest must be regarded as strangers.

OPERATIVE DENTISTRY.

Dr. Noyes, who opened the discussion, spoke as follows: My attention has been specially directed to the cervical borders of fillings in the last few months, with the result that I have come to the conclusion that this point is often neglected. The proper finishing of cervical margins is of the greatest importance, but does not receive proper attention oftentimes, because at the end of a long operation both the patient and operator are tired and nervous. In filling a tooth the first important point is to have the edges of the cavity carefully smoothed before inserting the filling. The next point of great importance is plenty of space—separation. It often happens that while we may have sufficient room to fill a tooth properly, there is not enough for finishing. The next point is complete exposure to the eye of the edge of the filling near or above the gum. An orange-wood wedge may be used for securing this, the painfulness usually resulting therefrom being controlled by the application of cocaine to the gums. In using disks, great care is necessary, the tendency being to trim away the lower third of the filling too much, the upper not enough.

Do not use pieces of gold so large as to obscure the view or endanger the certainty of thorough packing. First and second permanent molars, soon after eruption, may sometimes be filled with gold, but never with amalgam. Tin is the best material in a majority of cases. I must not be understood as condemning the use of amalgam entirely, as I think it an excellent material in its proper place.

Dr. Green—I fill the teeth Dr. Noyes has just mentioned, up to fourteen years, with cements. The average durability of such fillings is about four years.

Dr. Stevens—I am opposed to the use of cocaine. From my observation and reading I should as readily consent to use chloroform for an anæsthetic. In one or two cases death has resulted from the use of the two per cent solution of cocaine. I do not believe in employing corundum disks, but use a great many of sandpaper. Broken pieces of files may be used to advantage as matrices, instead of the patented and advertised articles.

Dr. Cady—If Dr. Stevens will try the Brophy matrix, he will understand its great advantages over the office-made instrument. Until about six months ago I was, after having tried a number, opposed to the use of any form of matrix, but at the earnest solicitation of a friend whose operative abilities I recognize, I tried the little instrument devised by Dr. Brophy, and was much pleased with it. I am satisfied that its use will, in many cases, save a vast deal of time and nervous strain to both patient and operator. The method of using gold and tin combined at the cervical margin, where the cavity extends to or below the gum, is admirable. The first third of the cavity I always fill with non-cohesive gold, and the finishing is done with No. 60, cohesive. Sandpaper disks are valuable adjuncts to the operating case, but I prefer those of emery-cloth. These, when moistened with oil, cut faster and with less pain to the patient from heat generated by the rapid motion. In addition to this, they are more pliable, and can be directed with a properly-shaped instrument into depressions and irregularities of surface that no other disk will reach.

Dr. Newkirk—I find most of the finishing tapes on the market too wide for my purposes. The narrow tape, to be obtained at dry goods stores, should be employed. I use the scalers of Dr. Cushing's set to follow out and cut off thin laminæ of gold at the cervical edge.

Dr. Stevens—Sandpaper disks, properly used, are better than tape, or anything else, for finishing the cervical edge.

Dr. Harlan—Many fail in adjusting the rubber-dam, because the mouth and teeth are not first thoroughly cleansed. This should be attended to first of all. Others use the ligature too thick, and without scraping. I do not believe in the indiscriminate use of matrices, but when they are used the same care in all steps of the operation should be observed as when they are not. Hydraulic gutta-percha is the best material for wedging. In the young there is great danger to the pulp and the peridental membrane in rapid separation. The separator, in any form, should be used very judiciously.

Dr. Woolley—I believe the matrix is a valuable instrument in its place, but the laws governing its use should be recognized.

Dr. Brophy—If tin and gold, or tin alone is used at the cervical margin, there will be no occasion to use at that point either disks or strips in finishing. All the polishing necessary can be done with the burnisher in most cases. If it is desirable to use anything more, Dr. Parmly Brown's strips, used with corundum mixed with glycerine to a paste of the consistency of honey, will be found superior to all else. Sandpaper disks and tape bear no comparison. The testimony of a gentleman concerning an instrument he has never used is of little value. Matrices are invaluable in many cases. They are frequently so in using amalgam, and more often with gold. In using them no retaining pits should be made, nor any groove made at the cervical margin. The floor of the cavity should be left smooth, and gently sloping toward the gum from the interior. Anchorages should be made in the lateral walls, some distance from the bottom, and sufficiently far from the top to preclude weakening the masticating surface. I hope the old methods of preparing and filling cavities are past, not only on our own account, but for the benefit of the community at large. It is impossible to use a piece of broken file for a matrix with success. With such an instrument we have a flat, unyielding surface, that will not conform to the tooth. Fillings made by its use are invariably flat and without contour, and the cervical margin is always a point of uncertainty. I agree with Dr. Harlan, that the indiscriminate use of matrices is wrong, but so is the indiscriminate use of almost any instrument that can be mentioned. It is best to start the

separating process slowly. In certain cases, nothing better has been devised than Perry's Separator, and this is specially true in country practice, where patients come many miles. Use the instrument carefully, turning slowly until slight pressure is obtained. Then separate, stopping often to turn the screw up a little more, until the space desired is made. I want to urge the use of soft gold, or better still, tin and gold, at the cervical margin and for the first third of cavities. Injudicious use of the ligature is often the cause of pyorrhœa alveolaris, from forcing the gum back and allowing the formation of salivary calculus.

Dr. Black—I want to utter a word of warning regarding the use of the matrix, when the bottom of the cavity is bowl-shaped. The gold, in such cases, will roll up, or turn one side, and the filling will be insecure from the start. I think it necessary to make the bottom of the cavity angular in some cases, to prevent this. Failure in contouring approximate surfaces of molars is the cause of more complaints among our patients than anything else, perhaps. In cases where decay has allowed the teeth to come together too closely, we should wedge a great deal, but slowly, because we must wedge so much. The cavities should often be filled temporarily, in order to wedge as desired. After the considerable space necessary is obtained, a matrix should be adjusted which will fit closely at the cervical margin. This must be loosened or removed at the proper point, and the filling contoured and finished.

Dr. Allport—I must condemn the general use of matrices, while recognizing the value of their occasional employment. I do not believe a good operation can be made with a band matrix when the cutting edge is larger than the neck of the tooth. A perfect fit cannot here be made at the cervical edge. One use to which the wedge may be put is to hold a tooth still. I am glad to hear non-cohesive gold favorably mentioned. I have advocated its use with broad instruments for twenty years. I have seen hundreds of teeth spoiled by improper preparation of their cavities, and the subsequent breaking away of sharp or thin edges in filling. I am in the habit of polishing the edges of cavities with pumice stone. If proper care is exercised in preparing and filling a tooth, but little finishing will be required. I have little need of retaining points. In concluding, let me urge the use of large instruments.

EVENING SESSION—PRACTICAL THERAPEUTICS.

The discussion of Dr. Harlan's paper, which had been continued from the session of Wednesday evening, was resumed.

Dr. Freeman—Dentists should at least try new remedies and learn the truth of the claims advanced in their favor. Many fail to obtain good results from peroxide of hydrogen.

Dr. Gardiner—I am not surprised at this, as dentists are not sufficiently careful in purchasing, and buy in too small quantities. Marsh's and Tromsdorf's preparations of H_2O_2 are both good. Glycozone is an excellent remedy.

Dr. Reed—I think one of the causes of complaint about peroxide of hydrogen is that the rubber-dam is not always adjusted before the remedy is applied.

Dr. Harlan—Peroxide of hydrogen is very useful as a detecter of pus in the Antrum of Highmore. Iodol is stimulant, without being an irritant. The effect of cocaine applied to the mucous membrane is to produce anæmia and paralysis of the vaso-motor nerves.

Dr. Gardiner—Warm water should always be injected freely into the antrum before using H_2O_2. In one case where I neglected this precaution, the effervescence caused by the remedy coming in contact with pus nearly suffocated the patient.

Dr. Black—I want to reiterate the necessity of applying the rubber-dam in all cases where the pulp-chamber is exposed. With our present knowledge of microbes we can feel assured that success will attend our efforts if proper antiseptic precautions are taken. Since we say positively that pus will not be formed without microbes, we should bear constantly in mind the importance of necessary precautions to hold the latter at a safe distance.

Dr. Morrison read his paper—

OPERATIVE DENTISTRY AS APPLIED TO DECIDUOUS TEETH.

The following is a rather brief abstract: It should be our aim to save all of the crowns in their natural shape and position, and by proper care to keep them thoroughly cleansed. Simple, regular-shaped cavities can be filled with gold, in cylindrical form preferably, retaining pits being seldom necessary or admissible. Continuous malleting or the use of much force should be avoided. Amalgam has a wide range of usefulness. It can be used for simple cavities, and for the larger and more complicated it has no superior. Heroic excavating should not be practiced, as it

often endangers the life of the pulp. Leave the soft dentine, if necessary, over the pulp tissues, securing slight undercuts only—merely enough to prevent the fillings from being lifted from their beds. Exposed pulps should be capped with gutta-percha dissolved in chloroform, or phosphate of zinc, where there is the slightest hope of retaining their vitality. When dead, remove all débris from the chamber and canals, and disinfect with wood creosote. Fill the roots with the gutta-percha solution, and the cavity with amalgam, being careful to polish the latter at a subsequent sitting.

Cements and gutta-percha are of too uncertain action, and too temporary in character for even deciduous teeth, gutta-percha swelling out of the cavity and the cements being too readily washed away.

About the time the centrals are erupted there is considerable pressure on the approximal surfaces, and when decay at these points is neglected the surfaces drop quite into each other. In this instance I wedge them open with cotton for a few days, and if the cavities are of such shape that individual fillings cannot be made so as to retain themselves in each tooth separately, I would block the entire space full, reaching from the undercut of the enamel of one crown across to the undercut in the other tooth, leaving the whole mass of the filling bridged from one tooth to the other, thus vastly improving the power of mastication, and keeping the arch braced to assist in the development of the second teeth, which is taking place below.

I rarely extract devitalized roots, but file and grind them smooth, a little short of occlusion. Educate the parent as well as the child, so that when they bring the first permanent molar decayed almost beyond recognition, they will not say, "I thought it was a baby tooth."

Too much sweets and insufficient diet are the causes of such imperfectly organized teeth, and the approximal pressure on the vitreous enamel, surrounded by vicious secretions, greatly accelerates their decay. Teach parents how to forcibly oxygenate their blood with the purest out-door air they can get, filling the lungs to their fullest extent, holding it a moment and then contracting the chest muscles upon them, thus forcing the air into the remote territory which is not used on ordinary occasions. Use boiled water to drink. Whether it be from hydrant, cistern or well, by heating to the boil-

ing point we destroy the organic life, which could not be other than harmful. Use sulphur as a dentifrice to destroy any parasitical life. By this line of treatment, in a few generations irregularities of the permanent teeth would be of very rare occurrence. Let all our efforts for these teeth be toward their preservation to the very last hour the individual can make any use of them, and let it be our aim to impress upon parents the necessity of proper care and attention upon their part. The value of deciduous teeth has never been properly appreciated by parents. I regard them as being just as important in their sphere as permanent teeth are in theirs.

Dr. K. B. Davis—Amalgam, tin, and phosphate of zinc may be used in those teeth, but gold—never. Injudicious extraction causes irregularities in the permanent teeth. Parents are often surprised to know that the first permanent molar belongs to the second set.

Dr. Brophy—I believe the greatest objection to extracting these teeth is that it causes too early eruption of the permanent successors. I have many models which substantiate this position. The permanent teeth, if too early erupted, are not sufficiently calcified to withstand those influences that bring about decay. Besides, it leads to irregularities and mal-position. On the other hand, we have trouble resulting from too long retention of the temporary teeth. This subject is a science in itself.

Dr. Newkirk—Nature's plan is for each temporary tooth to remain in place until the time comes for the appearance of its successor. The prevention of toothache is important. Pain banishes sleep. Sleeplessness leads to nervousness, and this to indigestion and disorders of the whole alimentary tract. A tooth with a dead pulp may be succeeded by an abscess. Such a tooth is sore, and in consequence the child cannot masticate, but bolts its food, and the evil results of indigestion follow. I am doubtful about the advisability of bridging a filling from one tooth to another. Such an operation would interfere with the natural movement of the teeth, and the fillings would not probably be permanent, unless the teeth and anchorage were unusually strong.

Dr. Ottofy—I object to the bridging here mentioned, on account of the difference of time in shedding the teeth. Teeth usually come in earlier on the right side than on the left.

Dr. Harlan—I have had the observation of a rather large family of my own, and think the second temporary molar seldom erupts

before the twenty-fourth month, and sometimes as late as the thirty-third. Dr. Morrison is mistaken in supposing that sulphur will destroy parasitical life. Powdered sulphur is inert, and not disinfectant.

Dr. Kester—Tin and gold, or tin alone, are excellent for use in the crowns of deciduous teeth. I like red gutta-percha also, and use it for bridging.

Dr. Black—Premature extraction of temporary teeth begets an irregularity of eruption, and teeth may come in too late as well as too early. The enamel in the permanent set is sufficiently calcified in all cases when the teeth are erupted, and the softening mentioned by a speaker is due to a diseased condition of the roots of the temporary teeth which occupied the space above it. An abscess on the root of a temporary tooth affects the building of enamel on its successor, and makes it faulty in structure and form. There is likely to be a contraction of the arch from early extraction of temporary teeth, but this does not necessarily follow. An arch is sometimes expanded by the advance of the permanent teeth. The alveolar process of the temporary teeth is never the alveolar process of the permanent ones. I want to say that I do not like bridging with amalgam. There is some excuse for it with gutta-percha or cêment. A good plan in many cases is to make a little platinum plate, with a pin soldered to the lower side for anchorage, which is pressed down into the warm gutta-percha and left to bear the brunt of mastication.

FRIDAY MORNING.

Dr. T. W. Brophy read a paper on the "Diagnosis of Oral Tumors." In the broadest sense a tumor is a swelling or puffing up of the tissues, and may manifest itself in various forms. It has been described as a local limited enlargement taking place at any part of the body, and consisting in its substance of a new outgrowth of tissue which has no physiological purpose in its growth. Our knowledge of the true characteristics of tumors has been acquired by means of the microscope, and a knowledge of minute anatomy is indispensable to the student of pathology, as he must be able to detect the changes that take place in the tissues as a result of perverted nutrition. Tumors are studied under two heads—histological and clinical. Their etiology, to a great extent, is still wrapped in obscurity. Conheim has advanced an ingenious

theory, saying: "There may be produced in an early stage of embryonal development more cells than are necessary for the construction of a definite part, so that a certain number of cells remain superfluous. Their number may be small, but they possess great proliferating power on account of their embryonal nature." According to this author these supernumerary embryonic cells are the origin of all subsequent growths, in the form of tumor during life, but his views are not generally subscribed to.

For surgical consideration, tumors are divided into two great classes —benign and malignant. While experience enables the surgeon to correctly diagnose tumors in nearly every instance, the microscope should be employed to settle beyond question the character of the growths. The method of diagnosis should be that of exclusion; *i. e.*, taking up the various conditions which may lead to the formation of a tumor, and, step by step, by both subjective and objective signs, and by manipulation, determine the character of the growth.

A patient presents himself, having a tumor over the anterior surface of a superior maxilla, and a marked prominence is observed. What is the cause and character of this abnormality? It may be active pericementitis, an alveolar abscess, an odontocele, an angioma, a dental exostosis, an osteoma, a fibroma, a distention of the walls of the antrum in consequence of an accumulation of fluid, a cancerous growth, or any other form of oral tumor. In making a diagnosis we should proceed methodically, and consider with care the exciting and predisposing causes, keeping in mind the anatomy of the parts. Is the enlargement due to pericementitis? The teeth are sound and not sensitive to pressure. None seem longer than the others, and occlusion is not painful. No, the enlargement is not due to pericementitis. Is it the result of alveolar abscess? The arch contains its full complement of teeth, and pulpless ones are not present. Fluctuation is not observed, and the needle does not evacuate pus. The swelling is not caused by an alveolar abscess. Is it an odontocele? This, as its name implies, requires an unerupted tooth for its nucleus. As before remarked, the dention is unbroken. We must remember, however, that an odontocele may have for its origin a supernumerary tooth. On introducing a sharp probe or exploring needle we do not observe the characteristic ring of the enamel which follows the stroke of steel. A tooth is not in

the growth. It is not an odontocele. Have we before us an angioma? An incision causes but ordinary hemorrhage, while a vascular tumor bleeds profusely when its walls are divided. It is not, then, an angioma, a dental exostosis, or an osteoma. The sharp probe readily enters its substance, showing it is not an osseous growth. A fibroma is indurated and sometimes has the feel of bone. The probe enters it with difficulty, since the mass is tough and apparently cartilaginous in structure. We have not here, then, a fibroma nor an epulic tumor, which has many characteristics of the former. Is this swelling due to a bulging of the antral walls in consequence of an abscess therein? What are the symptoms of abscess of the antrum? Dull, steady pain, a sense of fullness on the affected side, and often a diseased tooth as the origin of the lesion. When the natural opening between the nasal cavity and the antrum is closed, the osseous walls may become thin by absorption and bulge out. When the natural opening is not closed, the fluid escapes into the nose. Fluid has not found its way through the anterior wall of the antrum to cause the bulging. The antrum is not diseased.

We might in this manner consider all explainable tumors, and exclude them all. What, then, shall our diagnosis be? The origin of the growth is not found, and we cannot account for the presence of the tumor. A growth which cannot be proved benign should be considered a cancer, and treated as such. The line of treatment is prompt and thorough removal by a surgical operation.

Dr. Black—The subject of diagnosis is one of great difficulty to tell or write about. Little can be learned from the simple description of these growths. Observation is absolutely necessary for a thorough knowledge of the subject. The method of diagnosis by exclusion is very good, but we must thoroughly examine and re-examine all points of the case. The sharp corners of teeth are often the prime factors in the development of epithelioma. Epithelioma, occurring about the mouth and lips, outnumber all other causes combined. This subject is not properly understood by many of the profession. I remember a case in which through faulty diagnosis a large section of healthy alveolar process was removed. It is better, however, to cut away many times when unnecessary than allow one case of epithelioma to go too far. Epithelioma travels by way of the lymphatics, and after these are once attacked the patient is lost. Being transplanted through the glands to other parts of the anatomy,

you will understand the importance of operating early. This manner of being carried from one part to another is general, and does not relate to tumors of the mouth alone. In cancer of the stomach, for instance, the liver is never free from cancerous deposits, carried there in the blood-stream. Cancer of the tongue and lips is more dangerous than those of immovable parts.

Dr. Cady—It is important that we be able to diagnose these tumors ourselves, and not compelled to rely upon the judgment or ask the advice of physicians. Especially is this essential in a country practice. During the few years that I practiced in a small city, the importance of this knowledge was brought forcibly to my notice. One case that came under my care was a sarcoma of the superior maxillary, and though I urged the necessity of an immediate operation, the family physician counseled otherwise, and advised the use of listerine and myrrh, which he said would speedily bring about resolution. Fancy listerine and myrrh as a treatment for sarcoma! When at last the patient was operated upon it was found necessary to remove all the bone in the right side of the face from the median line, including the maxillary and malar bones and the floor of the orbit, an operation requiring over two hours. And yet simple antiseptic and astringent treatment was expected to effect a cure in such a case. The patient lived about a year after the operation, when the disease made its appearance in the glands of the neck and he speedily died, even listerine and myrrh being powerless to save him. Another case was sent me by a physician, with instructions to remove a superior molar, which, from being incrusted with calculus, was supposed to have caused "a sore spot which wouldn't heal while the tooth was there." A very brief examination convinced me that the "sore spot" was nothing less than a typical case of carcinoma, and as the patient was fifty years of age, and stated that his father had died of cancer, the prognosis was decidedly unfavorable. Imagine the pathological acumen of a man who pompously designates as a "sore" a malignant ulcer of this nature, with its characteristic appearance, which is almost unmistakable, and the fine way which he coolly directs the removal of a tooth as a cure for the most painful constitutional disease that flesh is heir to. I repeat, we should have a knowledge of these tumors, which places us above the necessity of consulting medical practitioners when a case presents for diagnosis.

Dr. Brophy—It is important to go far beyond the limits of this disease in operating, rather than stop a trifle short of it. I present for your examination a dermoid cyst, removed from the ovary of a woman sixty years of age. As you will observe, it contains four teeth and some hair.

Dr. L. L. Davis read a paper upon—

THE USE OF THE MICROSCOPE IN PROGRESSIVE DENTISTRY.

Though long regarded as a mere toy, the microscope now takes place among the useful and important adjuncts of medical and dental practice. It has done more than any other one thing to advance the progress of science, unveiling the mysteries of nature and opening a new world unto the student, and its present importance warrants the assertion that it is to become one of the prime educators of rising generations. It is but a short time since the study of microscopy was introduced into the curriculum of dental and medical schools, yet of such importance has this work proved itself that no college dare slight it at the present time. It is not expected that the student will become an expert in histological work during the short time spent in college, any more than it is supposed he will become skillful in the other branches of study, for skill and expertness are only acquired by experience, but the foundation should be laid so efficiently that after-life will prove the value of such training. Faith is not, as many suppose, the most essential qualification for the progress of this study. Let a man doubt every theory he reads till his own eyes and reason have compelled him to give assent to its truth, or show its utter falsity. For the young man there is no field so wide in which to carve out name and fame, and in no other line of intellectual development will be found so fascinating and pleasant an occupation.

Dr. Gilmer—It is essential that all should have at least a knowledge of practical microscopical matters. A professional man should know something of all things, and all things of some one thing. He should be as familiar with the formation of a tooth as with its external appearance, and the student learns more of a tooth's structure from the microscope than from any number of didactic lectures and illustrations. I am glad this subject is taking root among the members of the Illinois State Dental Society, and hope it will increase till all are practical microscopists.

MINNESOTA STATE DENTAL SOCIETY.

BY T. E. WEEKS, D. D. S.

The annual meeting of the Minnesota State Dental Society, held in Minneapolis, commencing July 13th, was a successful one from every point of view. About seventy-five members were in attendance, and the papers and discussions were especially interesting and profitable.

Owing to the absence of the chairman of the committee, nothing was done regarding the Black testimonial matter, save to continue the committee and to instruct them to do all that it is possible to do by correspondence.

Dr. H. L. Crittenden, of Northfield, presented the society with a handsome and unique gavel of hard rubber, fashioned like a superior molar tooth, mounted in gold, with handle of ebony, suitably inscribed. It was voted that it be loaned to the Dental Section of the Medical Congress for the use of the chairman at its coming meeting.

Dr. L. P. Haskell, of Chicago, was present and gave a clinic in continuous gum work.

Dr. A. C. Hewett, of Chicago, illustrated the Herbst method of filling teeth, using the Hewett matrix.

Dr. E. B. Call, of Peoria, Ill., illustrated his method of filling teeth by lining the walls with soft gold, tin, or tin and gold, folding some of the material over one of the Call matrices before its insertion, and then condensing the filling into the cavity and against the margin.

Dr. W. A. Spaulding filled a mesial cavity, using Steurer's gold.

Drs. M. G. Jennison and L. C. Gould operated for necrosis, caused by an impacted wisdom tooth.

Dr. C. H. Goodrich filled a distal cavity in a second bicuspid, without using the matrix.

Dr. L. D. Leonard read a paper upon "Lesions of the Mouth," illustrated by views shown through the stereopticon, of slides representing embryonic and pathological conditions.

Dr. E. H. Angle presented "Notes on Orthodontia, together with a New System of Regulating and Retaining Appliances."

Dr. F. H. Brimmer presented his process of obtunding sensitive dentine by vibration. (See Dr. Brimmer's paper in this journal, page 301.)

Dr. Hewett presented a paper upon the Herbst process, and a number of interesting cases were reported.

A committee was appointed to collect and take charge of a fund, to be raised by requesting each member to contribute five dollars, to be expended in resisting unjust patents.

Some idea of the interest manifested in the meeting may be gained from a knowledge of the fact that seven sessions were held, with two half-day clinics; that the thermometer did not go below 80 degrees at any time during the day or night, and yet not one of the members in attendance upon the meeting was absent from any session, unless it were the opening and closing.

The following were elected officers to serve during the ensuing year:

President—Dr. H. L. Crittenden, Northfield.
Vice-President—E. H. Angle, D. D. S., Minneapolis.
Recording Secretary—Dr. D. W. Edwards, Le Seuer.
Corresponding Secretary—Dr. L. C. Gould, St. Paul.
Treasurer—H. M. Reid, D. D. S., Minneapolis.

Editorial.

MEDICAL RECOGNITION.

In the last number of this journal we reviewed the action of the American Medical Association in passing the following resolution:

Resolved, That the regular graduates of such dental and oral schools and colleges as require of their students a standard of preliminary or general education and a term of professional study equal to the best class of the medical colleges of this country, and embrace in their curriculum all the fundamental branches of medicine, differing chiefly by substituting practical and clinical instruction in dental and oral medicine and surgery, in place of practical and clinical instruction in general medicine and surgery, be recognized as members of the regular profession of medicine, and eligible to membership in this Association on the same conditions and subject to the same regulations as other members.

We expressed the opinion that if this were adhered to in good faith, it would tend greatly to elevate the standard of dental education, for the diplomas of such schools as complied with these

reasonable requirements would alone be of value. It was within the power of medicine to stamp out our irregular colleges, and to put a stop to the granting of degrees to unqualified and ignorant persons. It was only necessary for medicine to strictly maintain the line where that resolution drew it, and in a short time a dental degree would be better evidence of proper professional training than would that of most medical schools. The resolution positively announced that the possession of such a diploma would entitle its holder to admission to the International Medical Congress, and this was a consummation devoutly to be wished. We were not certain that the authority of the American Medical Association to establish new degrees in medicine would be respected by all the world, or that its right to modify the rules of admission to a congress with which that association had really nothing to do would be acknowledged by foreign members, but it at least established a valuable precedent. We were well aware that the men who are leading members of the association are also influential members of the Executive Committee which is this year managing the Congress, and in any case we did not propose to look a gift horse in the mouth, but to take unhesitatingly the good which was offered us.

But a somewhat remarkable editorial article in the *Journal of The American Medical Association* of July 9th, causes us to enquire where this action is to cease, and whether all professional lines are to be wiped out. It should be remembered that the editor of that journal is the president of the Congress, and therefore his editorial utterances are an official expression, and have a specially authoritative significance. In speaking of the conditions for membership in the Congress, he says :

"In regard to the registration of educated dentists, about which there has been some question, it is sufficient to say that the same rule will be followed as governed at the London Congress of 1881. The establishment of a Section of oral and dental surgery is a full admission that it constitutes a part of the domain of general medicine and surgery, and that all who, by education and proper legal authority, practice in that special department, are 'members of the regular medical profession.' At the London Congress they registered with the common prefix 'Dr.,' as did a large portion of eminent members of the profession in other departments.

"At the Congress at Washington it will be proper for them to register with the title Dr., M. D., D. M. D. or D. D. S., accord-

ing to the term of the authority conferring upon them the right to practice their profession."

If we can rightly comprehend this article, it goes altogether too far. It not only recognizes the graduates of such dental schools as come up to the requirements of the resolution of the American Medical Association, but it admits any one who lays claim, whether justly or unjustly, to the appellation "Doctor." It recognizes a title which has no professional significance in this country. Veterinary surgeons are "doctors," and every quack, every "root and yarb" pretender, is especially tenacious of his title of "doctor." If every one who chooses to come before the secretaries of the Congress and call himself a doctor is to be admitted without question, a diploma is of no use.

We were pleased that respectable graduates of reputable dental schools were to be recognized; but if all who by "proper legal authority practice in that (our) special department" are to be admitted, then are the rules which require members to be "of the regular medical profession" a mere farce. In the State of New York, for instance, the act regulating the practice of dentistry provides that any one who claimed to be a dentist at the time of the passage of the act should be entitled to registration, and this should be considered a qualification for practice under the law. A majority of these possessed no diploma, and many of them were the veriest charlatans. Yet they practice by "legal authority," and so may register as members of the Congress, and according to this interpretation are "members of the regular medical profession." The certificates of the examining boards of different States are "legal authority" for practice, and hence make a man a "member of the regular medical profession" and entitle him to registration in the Congress. Verily the respected editor of the journal of the A. M. A. will make the whole affair ridiculous, if the obvious interpretation of his article is to be accepted.

It seems to us that it is time to call a halt in this matter. A recognition without discrimination is valueless, and the good which we had hoped for from the original resolution of the A. M. A. may be turned to evil, for instead of putting a premium upon a thorough dental education, this interpretation of it destroys the value of a diploma by placing its possessor upon the same level with the uneducated. We desired that the door of admission to the Congress

should be opened a little wider, until it would allow the entrance of the educated dentist, but we did not ask that the walls should be leveled with the ground. We asked recognition for the qualified dentist, but we did not seek to have all lines of demarkation wiped out. We sought fellowship for educated men, and not that under pretence of granting our petition every one who pretends to practice dentistry should be given the same standing. If this is to be the result of the late action, we can only say that it will tend to degrade rather than to elevate dentistry, for our best men have been laboring to build up a wall separating the qualified from the unqualified, and this action would again break down the barrier and render nugatory all past efforts.

We sincerely hope that the editorial in question was but a careless piece of writing rather than the expression of a settled purpose, and that mere legality will not be the rule of admission to the Congress.

NEW REMEDIES.

There has been a disposition on the part of some to multiply remedies, and to abandon old and well-known preparations for others which were comparatively untried, and which had nothing but novelty to recommend them. Cautious experimentation with new drugs is one thing, and the unqualified commendation of articles new to the pharmacopœia is quite another. Dentists should become acquainted with new remedies, for a valuable adjunct in practice may thus be secured. But to recommend to those who obtain their ideas at second hand that they should abandon the use of a preparation having recognized virtues for another of only supposed efficacy, is scarcely excusable.

Iodol, for instance, has been warmly advocated as a substitute for iodoform. It was asserted by medical men that it possessed all the good qualities of the latter without its disadvantages; that Iodol was but the concentrated essence of iodoform, divested of its evil odor and irritative characteristics. Further experimentation has taught that it is not at all well adapted for the offices of iodoform, and it has as rapidly fallen out of favor as it grew into it at first.

Eugenol, again, is not at all the same thing with oil of cloves, nor will it take the place of the latter. That it possesses qualities which sometimes make it useful in dental and medical practice is

not for a moment denied, but it has none of the soothing and obtunding characteristics of the oil of cloves, and widely differs from it physically.

Oil of Eucalyptus is another disappointment. Those who have attempted to employ it in place of carbolic acid or iodoform as an antiseptic, have been disappointed. It possesses a high odor and masks the fetor of septicism, but it is not, at least in our hands, a satisfactory disinfectant, or even antiseptic.

Sanitas Oil is, perhaps, even a worse disappointment than either of the others. It is a proprietary, we believe even a "quack" preparation, that originated in England, and it has been widely and persistently advertised as a disinfectant for cess-pools, and for sanitary uses. For these purposes it may be sufficient, though we should think that its vile odor would be enough to condemn it, but for dental purposes it does not to us seem at all adapted.

Our materia medica is all too limited, yet it is unwise to enlarge it by introducing drugs of not only doubtful utility, but those which are so far untried that they are liable to prove positively deleterious.

TOOTH POWDERS.

The National Druggist says that some time since it was discovered that the addition of powdered soapstone to the water in steam boilers prevented the deposit of lime concretions. Straightway some brilliant genius was possessed of the idea that, as the tartar upon the teeth was of the same general character with the incrustation of steam boilers, all that was necessary to prevent its deposition was to add soapstone to a dentifrice, and the following formula was devised and recommended by leading medical journals:

Powdered steatite,	ʒ xv.
" alum (or cream of tartar),	ʒ iss.
" cochineal,	ʒ iiss.
Essence peppermint,	gtt. xx.

A more absurd preparation for the purposes desired could scarcely be conceived. In the first place, soapstone is a lubricator, and its use in a tooth powder will not furnish sufficient friction to properly clean the teeth.

There are few substances more destructive to the tooth tissues

than is alum, the double salt of alumina and potash, hence its use in a tooth powder is entirely without excuse.

The addition of two and one-half drachms of cochineal is too absurd for comment, while the peppermint as a flavor will not serve to cover the taste of the other ingredients nearly as well as would some other material. We can only repeat what we have before said—that in the preparation of tooth powders it is better to leave the whole to some one who makes a specialty of the business; one who has all the facilities for a perfect trituration and mixing of the ingredients, and who prepares the dentifrice from a standard and approved formula.

THE ASSOCIATION.

Everything seems to promise a pleasant and profitable meeting of the American Dental Association for this year. Some papers of more than usual interest are pledged, and a number of special arrangements have been made which, it it hoped, will prevent some of the friction of previous meetings. There is an excellent opportunity for those who really have the interests of the Association at heart, to prove their loyalty by their attendance and labor this year. It is easily within the limits of possibility to have the most profitable meeting that the society has ever held. But to accomplish this those who attend must drop all selfish and personal ends, and bear in mind that the Association was not organized to further the ambition of any one, but to promote scientific and professional matters. If all will agree to let the constitution and by-laws alone for one year, to allow the Association to elect its own officers without any dictation or wire-pulling, to banish clap-trap and bombast and shun talking for talk's sake, we may have the best meeting ever yet held.

BIBLIOGRAPHICAL.

A System of Dental Surgery. By Sir John Tomes, F. R. S. Third edition, revised and enlarged. By Charles S. Tomes, M. A., F. R. S. With 292 illustrations. Philadelphia: P. Blakiston, Son & Co. 1887.

There is no dental text book which occupies a higher place in the estimation of our English confrères than does the work under notice. First issued in 1859, it immediately leaped into professional favor, and took its place at the head of professional literature, a position which it still maintains and seems likely long to hold. The

high favor with which it is regarded in England is due to the many excellencies of the work itself. John Tomes has always borne the reputation of a man who never made an assertion until he was certain of his facts. His name has not often appeared in dental literature, but when it has the student always felt assured that the subject matter had been well considered. He never jumps at conclusions, nor rests assertions upon a few hurried observations. As a consequence he has not, like many so-called investigators, been compelled to retract one day what he had confidently asserted the previous one. Nor has he misled his readers, teaching them false doctrines, and so destroying the confidence which had been reposed in him; if his methods were sometimes called slow, they possessed the inestimable advantage of being sure.

In the preparation of the new edition by the younger Tomes, all the leading characteristics of the earlier editions have been retained, while the whole has been modernized and the newer observations and discoveries of later years are judiciously incorporated. That this was a task of no small proportions the careful student must be aware, for duly to consider the almost numberless theories and records of the many who have made contributions to scientific dental literature, to select the wheat and leave the worthless chaff, to condense and to harmonize that which seems incompatible, and to reduce to a system the many jarring inconsistencies of zealous but at times injudicious writers, was a labor that but few are quite competent to perform. Mr. C. S. Tomes has accomplished it admirably.

There is another virtue which the book possesses. Instead of being padded out to unseemly proportions by borrowing from dental manufacturers the wood cuts of their simplest appliances, and endeavors to enlarge the book by a kind of covert advertising, it contains little that is not indispensable to a thorough comprehension of the subject. We would that some American publishers of dental works would copy these good qualities. The revised edition should meet with a large sale in this country.

A Treatise on Diphtheria. Historically and practically considered, including Croup, Tracheotomy and Intubation. By A. Sanne, Docteur en Médicin, Chevalier de la Légion de Honneur, etc., etc. Translated, annotated, and the surgical anatomy added by Henry Z. Gill, A. M., M. D., LL. D. St. Louis: J. H. Chambers & Co. 1887. Pp. 656.

Medicine has made wonderful advances of late in the methods of

the treatment of many diseases, but in no field perhaps have more important discoveries been made than in tracheal affections. In fact, the scientific methods of combating diphtheria are almost entirely modern, and the practitioner who is not familiar with the late medical literature upon this subject is quite unfit for his duties. Yet the articles published upon this most important subject are scattered through the journals, or exist in the form of monographs, which are not easily obtained. The admirable and exhaustive work of Dr. Sanné has brought into one volume and within the reach of every practitioner all the experience of the past and the knowledge of the present, and may be regarded as a complete treatise upon its subject. There are very few—if any—fields of medicine that have received such a complete exposition and are so thoroughly and exhaustively considered as is the one chosen by our author. The physician who is the possessor of Sanné needs no other reference or text book.

The first part is given up to the surgical anatomy of the pretracheal region, with reference to tracheotomy in children, and so numerous and graphic are the illustrations that they afford a complete study of the parts. Then the pathology of all the varying conditions in diphtheria is carefully considered, its treatment, both medicinal and surgical, minutely explained, and all the varying sequelæ pointed out. It would be impossible within the limits of a journalistic notice to fully speak of all the merits of this most complete text book in medicine. It must suffice to say that it is one which the general practitioner cannot afford to be without, for it is the summing up, the complete crystallization of all the knowledge of the present day, of the matter of which it treats.

J. H. Chambers & Co. have furnished to medicine books of great value, but we believe that neither they nor any other publishers have offered anything of greater importance in any special field of medicine than is this work in its own domain.

Earth as a Topical Application in Surgery. Being a full exposition of its use in all the cases requiring topical application admitted in the men's and women's surgical wards of the Pennsylvania Hospital, during a period of six months, in 1869. By Addinell Hewson, M. D. Second edition, with four photo-relief illustrations. Philadelphia: The Medical Register Co. 1887.

Not content with issuing one of the best of the medical weeklies, *The Medical Register*, its publishers have entered upon the work of

furnishing to the profession a series of useful and popular medical books, and we are in receipt of two neat volumes from their press, both of which are of an exceedingly practical nature—handbooks for every day reference. The character of medical literature has materially changed within a few years, and instead of the elaborate and prolix treatises covering almost the whole domain of medicine, and appearing only at long intervals, we now have brief monographs upon some specific subject, written, perhaps, in a hurried manner and possessing little claim to literary excellence, but bearing all the marks of freshness and earnestness exhibited by records direct from the laboratory or bedside. Such books should be the companions of students and practitioners engaged in special observations, for they contain the data with which earnest men may compare their own observations, and thus arrive at a definite conclusion concerning any proposed method of practice.

There is, for instance, scarce an intelligent man who has not at some time been impressed with an idea of the virtues of fresh earth in the treatment of wounds and cases of poison inoculation. He has in boyhood listened to tales of its curative virtues, and in his more mature years has, perhaps, himself observed such instances. The book under notice contains the record of ninety-three cases of hospital treatment by earth dressings, with notes and comments, the record of microscopical examinations, and an exposition of the *modus operandi*. Every physician knows the value of earth closets in deodorizing and disinfecting evacuations, and it was this efficiency which first suggested its use in the treatment of ulcers and putrefactive inflammations. Some of the cases detailed are remarkable, and in this day of antiseptic treatment should be studied by every practitioner. Price, $1.00.

What to do in Cases of Poisoning. By William Murrill, M. D., F. R. C. P. First American from the fifth English Edition. Edited by Frank Woodbury, M. D. Philadelphia: The Medical Register Co. 1887.

There is no emergency for which the physician needs to be more thoroughly prepared than for a case of poisoning. In such instances an instant of time is sometimes worth a human life. There is no leisure for an examination of standard text books, nor for the compounding of an elaborate prescription. Every one about has usually lost his presence of mind, and is in such a state of excite-

ment and confusion that he is an absolute embarrassment. At such a time the physician should be competent to assume entire direction, and, in the absence of usual remedies, be prepared to utilize whatever the vicinity affords for relief. Unless he is possessed of the necessary information he cannot do this. His "dose-book" is at home, and his table of antidotes is with it. If he have not the knowledge which may be obtained by the study of such books as this, the physician himself is in the way. Let him obtain it and master its contents, and he will then be armed for any case of poisoning which he may be called upon to attend.

PRACTICAL LESSONS IN NURSING.

I. The Nursing of and Caring for the Nervous and the Insane. By CHARLES K. MILLS, M. D.

II. Maternity, Infancy and Childhood. By JOHN M. KEATING, M. D.

III. Outlines for the Management of Diet. By EDWARD TUNIS BRUEN.

Philadelphia: J. B. Lippincott Company. 1887. Price, $1.00 each.

These are the first three volumes of a series of hand books devoted to that most important therapeutical agent, nursing and diet. Every thinking physician knows that the welfare of his patient depends quite as much upon the nursing and care which is given as upon the medicines administered, and very often the latter are but secondary and of little importance as compared with the former. There is an unsuspected amount of ignorance concerning these things in households of supposed intelligence, and the medical attendant too often is required, not only to direct what shall be the diet of the sick, but to be able to give instructions in the proper preparation of the food. He must not alone direct what shall be the attentions administered, but illustrate them to the attendants, for it is not often that the trained nurse will be at his command. The physician, then, must possess the information which these books convey. If in addition he could place the proper one in the hands of friends of the sick, he would enhance his own reputation and be assured of better care for his patients.

Every expectant mother, for instance, and every one who has the care of children, should possess a copy of "Maternity, Infancy and

Childhood," and should make a careful study of it. Dr. John M. Keating is an authority upon the subject of which he speaks, and there is so much of information condensed within a small compass that we almost wonder how any intelligent woman can undertake the care of the child given her without a study of the subject, such as may be obtained from this little volume.

The other volumes are of equal import in their own field. They are adapted, not alone to the professional man, but to the apprehension of every one who cares to know anything of the laws which govern the human system in health or disease.

THURLY TIGHE; OR, THE LIFE OF A STUDENT. By FELIX WEISS, L. D. S., author of "Vernon Galbray," etc., etc., etc.

We have spoken of this capital story when it was in course of publication as a monthly supplement to *The Dental Record* of London. We can only compliment the author of this entertaining and instructive dental tale, and hope that this will not be the last book from his pen which we shall have the pleasure of reading.

TRANSACTIONS OF THE ODONTOLOGICAL SOCIETY OF NEW YORK FOR 1886. Philadelphia: The S. S. White Dental Manufacturing Company.

This is another volume of a valuable series. The transactions of this society, handsomely issued as they are by the publishers, form a valuable addition to any dental library.

TRANSACTIONS OF THE NEW JERSEY STATE DENTAL SOCIETY FOR 1884, '85 AND '86.

The New Jersey State Dental Society is one of the most active of all the organizations in this country. It includes within its membership men well known to dentistry, clear and vigorous thinkers and writers, and the record of its doings is of interest to all progressive dentists.

The Management of Pulpless Teeth.

This is a capital monograph, published by the Chicago Odontological Society, a copy of which should be in the hands of every progressive dentist.

Twentieth Annual Report of the Trustees of The Peabody Museum of American Archæology and Ethnology.

Baked Beans. A serio-humorous medical paper. By EPHRAIM CUTTER, A. M., M. D. Reprinted from *Albany Medical Annals.*

Transactions of the Louisiana State Dental Society for 1886.

Report of the Proceedings on the Occasion of the Presentation of a Testimonial to Dr. W. H. Waite, at the annual meeting of the Midland Branch of the British Dental Association, held in Chester, April 29, 1887.

Transplantation of a Rabbit's Eye into the Human Orbit. By CHARLES H. MAY, M. D. Reprinted from *The Archives of Ophthalmology.*

Importance and Value of Experimental Research. By N. SENN, M. D. Reprinted from *The Western Medical Reporter.*

Some Considerations Concerning Cancer of the Uterus, especially its palliative treatment in the later stages. By ANDREW F. CURRIER, M. D. Reprinted from *The New York Medical Journal.*

Persistent Pain After Abdominal Section. By JAMES B. HUNTER, M. D. Reprinted from *Gynecological Transactions.*

The Uses of Massage in Medical Practice. Translated from the German of Reibmayr. By BENJAMIN LEE, A. M., M. D., Ph. D.

Prescription Writing. By CHARLES H. MAY, M. D. Issued for the use of his Quiz Classes.

Feeding Patients Against the Appetites. By EPHRAIM CUTTER, M. D., M. M. S. Reprinted from *The Medical Register.*

President's Annual Address at the Midland Branch of the British Dental Association. By FRED. BULLIN, J. P., L. D. S., England.

Pelvic Inflammation; or, Cellulitis *versus* Peritonitis. By THOMAS ADDIS EMMETT, M. D. Reprinted from *Gynecological Transactions.*

Congenital Occlusion of the Posterior Nares. By ALVIN A. HUBBELL, M. D. Reprinted from *The Buffalo Medical and Surgical Journal.*

Third Annual Report of the Board of Dental Examiners of Iowa.

Fourth Annual Report of the Board of Dental Examiners of Iowa.

Report of the Board of Dental Examiners of California.

Current News and Opinion.

OBITUARY.

J. R. WALKER, D. D. S.,

Died at his residence, Bay St. Louis, Miss., June 22, 1887, in the fifty-seventh year of his age. Dr. Walker was born in the State of New York, but obtained his dental training in Illinois and Michigan, finishing as a pupil of Dr. Foster of Jackson. In 1858 he went to New Orleans, where, if we except the time spent in the Confederate service during the war, he has ever since been in practice, and has held a leading position. He has always been prominent in dental societies, and was a frequent attendant upon their meetings. It was not alone in dental science that he was interested. He was a valued member of the American Association for the Advancement of Science, and read several interesting and excellent papers before that organization. Dr. Walker had strong and positive views upon most professional subjects of the day, and urged them with great vigor and ability. He was a sententious and logical reasoner, and his published essays show him as a clear and lucid writer. That he possessed the respect of his professional associates is proved by the many positions of honor to which he was advanced. For some time he had been failing in health, as those who met him at society meetings could plainly perceive. His strength continued to diminish, until at the last he passed away as the weary child sinks to quiet sleep.

THE INTERNATIONAL MEDICAL CONGRESS.

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
WASHINGTON, D. C., June, 1887.

Prof. John B. Hamilton, M. D., Secretary-General Ninth International Medical Congress, Washington, D. C.:

SIR—In reply to the inquiries contained in the letter of F. H. Rehwinkel, M. D., referred by you to this department, I have to state that the professional books, implements, instruments, etc., of persons arriving in the United States, are exempt from duty under the provisions of the tariff law, which also provides for the free admission of "models of inventions and other improvements in the arts, such as cannot be fitted for use;" and that parties arriving from foreign countries for the purpose of attending the Ninth International Medical Convention, to meet at Washington, September 5, 1887, and who bring with them their own "surgical or dental instruments, scientific and mechanical appliances, models and materials to be used for clinical demonstration under the direction of the said Congress," will be entitled to have the same passed free of duty, on the usual oath that they are for their personal use and are not intended for sale.

As it would appear from the act of Congress relative to said convention, that the said Ninth International Medical Congress is a society established for philosophical and scientific purposes, books, maps and charts (not more than two copies in any one invoice), philosophical and scientific apparatus, instruments and preparations, casts, paintings, drawings and etchings, specially imported in good faith for the use of said Congress and not intended for sale, would also seem to be entitled to free entry under the provisions of the tariff act now in force, a copy of which is herewith enclosed. (See paragraphs 660, 759 and 815.)

Copies of this letter will be transmitted to the collectors at the principal ports for their information and guidance.

Respectfully yours,

C. S. Fairchild,
Secretary of the Treasury.

ADMISSION OF DENTISTS TO THE CONGRESS.

Editor Independent Practitioner:

Dr. Hunt, of Washington, and the writer, called on Dr. J. B. Hamilton, Secretary-General of the Ninth International Medical Congress, at his office, and there met two or three members of the Registration Committee of the Congress.

We were authorized to say that the Registration Committee considered the question of the admission of dentists to membership in the Congress clearly and definitely settled by the resolution adopted by the American Medical Association, and that, in accordance with the resolution, dental graduates can register and take out tickets of admission the same as medical graduates, and that a form of registration has been prepared, in which dentists will register as special practitioners.

Will you please insert this in the August number of the Independent Practitioner, for general information, and also say that the meetings of Section XVII will be held in the "Church of Our Father," corner of 13th and L streets, and the clinics and exhibits in the Franklin School Building, corner of 13th and K streets.

C. F. W. Bodecker, D. D. S., M. D. S.

REGISTRATION BLANK.

"This Congress will consist of such members of the regular medical profession as shall have registered and taken out their tickets of admission, and of such other scientific men as the Executive Committee of the Congress shall deem it desirable to admit."

Those about to register will please read and give attention to the following directions to secure accuracy in the list of members of the Congress, and to prevent mistakes therein it is especially requested that all proper names of persons and places shall be written distinctly and in full, and without abbreviations in any case. (*For example:* Instead of J. W. Taylor, Phila., Pa., it should be written John Warren Taylor, Philadelphia, Pennsylvania, etc., etc.

By order of

The Committee of Arrangements.

Register No......

FORM TO BE FILLED UP BY APPLICANT FOR MEMBERSHIP IN THE CONGRESS.

DATA REQUIRED:

Name in full.....
Post-Office Address.....
If in city, give also street and number.....
If in the country, give also name of county.....
State.....
Province.....
Country.....
If a Delegate, state from what country or society.....
Practice general or special.....
If special, name the branch.....

Editor Independent Practitioner:

Will you please give notice that, as I am unable to continue the work of the Secretaryship of the Dental and Oral Section of the International Medical Congress, Dr. A. M. Dudley, of Salem, Mass., has kindly consented to act.

All communications should henceforward be addressed to him.

E. A. BOGUE.

NOTCHES IN THE UPPER CENTRAL INCISOR TEETH WHICH RESEMBLE THOSE OF SYPHILIS.

There is a state of notching of the upper incisor teeth, which affects the two central ones of the permanent set, and produces a condition very deceptively like that of syphilis. The notches are central, and very conspicuous. A chief point of difference from the syphilitic tooth is that the tooth is usually wide instead of narrow at its free edge. Syphilitic teeth almost always show narrowing, like a screw-driver, as well as notching.

Another point of difference is that the teeth, when looked at carefully, are seen to be craggy and very hard, not worn as the syphilitic tooth. In a very marked example of the pseudo-syphilitic notching, the father of the patient told me that the condition was hereditary, and the youth's mother had teeth of the same kind. In this instance there was no history of fits in infancy, or of the use of mercury or teething powders. Nor, indeed, were the conditions those of stomatitis, or mercurial teeth. The defects occurred in pairs of teeth, and did not damage the whole row. Nor were the first permanent molars—the test teeth of the mercurial set—involved. I have in several other examples of craggy teeth been assured that the peculiarity was in the family. I feel certain, therefore, that we must admit inheritance as an occasional explanation of peculiarities in the form of the teeth. I was once shown, in one of the Paris hospitals, a pair of teeth such as those which I have above described, and great surprise was expressed that I could not admit that they were characteristically syphilitic.—*Jonathan Hutchinson in British Medical Journal.*

PYORRHŒA ALVEOLARIS.

Mr. Newton Pedley, F. R. C. S., read a paper at the Odontological Society upon the above subject. Pyorrhœa alveolaris is characterized by conditions as follows: The mucous membrane, especially that adjacent to the teeth, is deeply congested, tumid and thickened, and detached from the necks of the teeth and from the roots. A thick, fetid discharge may often be pressed up from between the teeth and the mucous membrane, which gives the breath a very repulsive odor. Later the alveoli become absorbed and at times more or less denuded, while the fangs of the teeth become coated with a hard, thick, green-brown tartar. Ultimately, the disease progressing, the teeth, one after another, drop out. The pathological changes which take place are hypertrophy of the muco periosteal fold around the teeth, accompanied by dilatation of capillary loops, enlargement of the papillæ, and rapid proliferation of epithelial cells. Later the gum becomes firm and contracted and displays increase of fibrous tissue. The changes which go on in the socket have not yet been satisfactorily worked out, but the examination of the jaws of some carnivora which were apparently affected with pyorrhœa alveolaris would lead to the supposition that there is osteitis of the alveolar process spreading toward the apex of the socket. There are many differences of opinion as to the causes, some maintaining that it is of parasitic origin, and due to a specific bacillus, but there is no good proof of this; others that it is catarrhal, and an extension of inflammation to the mucous membrane; others that it is due to small deposits of hard tartar under the edge of the gum, but this is plainly not the case, for the disease may be far in advance of the deposit, and in some instances there is not any to be found. It is probably due to some constitutional condition, and the fact that it is often symmetrical and frequently hereditary gives support to this view. It occurs in the mouths of patients whose health has been undermined by debilitating influences and injudicious habits of living; it is a common sequel of malarial fever in America; young persons recovering from eruptive fevers are sometimes victims of pyorrhœa alveolaris, and frequent pregnancies are a fruitful source of the disorder. Attention has lately been drawn to shedding of the teeth in tabes dorsalis, but it does not by any means seem to be a constant symptom. Mr. Bland Sutton has found that premature loss of the teeth is a very common affection in cases of rheumoid arthritis in animals, and has also met with it in mollities ossium and other wasting diseases. Magitot, who views the alveolar-dental periosteum as a ligament, and not of the same nature as osseous periosteum, calls the disease symptomatic alveolo-arthritis, and mentions especially as causes chronic Bright's disease and glycosuria, in which latter, he says, the phenomenon is absolutely constant.—*The Lancet.*

HOW TO CHOOSE A DOCTOR.

To be a doctor, one must first be a man, and a mean man cannot be a good doctor any more than he can be a good minister or a good husband, and a really honest, large and loving man cannot make a poor doctor, no matter what his pet party may be. To have good sense as a doctor, one must have good

sense as a man. If your doctor is a nincompoop about other things you may be sure that he is a ninny as to medicine and surgery. If the doctor's office is untidy and vile to smell of, you may be quite certain that he will come short of giving good counsel as to health and tidiness of body. If he be clumsy in hitching his horse you may be sure that he is not handy at surgery midwifery. If he be a great, coarse, blundering fellow, careless of dress, a two fisted, farmer-looking man, you may be sure he will lack perception of those finer symptoms by which a good doctor is guided. If he slanders brother physicians who profess a different party, you may be sure that he is himself a quack. Good earnest doctors are too busy to find time to slander their brethren or their rivals. It is all the same with lawyers, ministers and teachers. The truly good and truly great do not detract from the reputation of others, and they are generous and magnanimous even to rivals. If your doctor falters you, and humors your lusts and appetites, and helps you out of a bad scrape secretly, without reproof, as if you had done no wrong, distrust him. If you can hire him to do or say what he would not do without the hire, beware of him. Good doctors cannot be bought. Your doctor ought not to be a single man. He ought to have a wife and children, and if you see that his wife respects him, and his children obey him, that is a very good sign that he may be trusted. If your doctor tells you how to keep well, that is a good sign. You come to him with the toothache; he gives you creosote and clove oil for the tooth, and at the same time suggest that you do not wash enough to keep well—that is a good sign. If the children like him, that is a good sign. If you find him reading in his office, that is a good sign, especially if he be a settled middle-aged man. If you hear him say: "I once thought so and so, but I was wrong," that is a good sign. If the doctor is neat and handy in rolling pills and folding powders, that is to his credit as a surgeon. If he understands how to bud roses, graft fruit trees, mix strawberry pollen for improved berries, cure chicken pip, and tinker a trunk lock, or put a clock in order, all these are so much to his credit. If, further, you love to meet him, the sight of him quickens you, and you are glad to hear him chat, and you know him to be a lovable, sympathetic man—he's the man for your doctor, your confidential friend; find him, trust him—*Beecher.*

MISSOURI STATE DENTAL ASSOCIATION.

The twenty-third annual meeting of the Missouri State Dental Association was held at Kansas City, June 21 to 24. The following officers were elected for 1888:

President—Wm. N. Morrison, St. Louis.
First Vice-President—T. M. Nicholson, Fayette.
Second Vice-President—J. T. McWilliams, Mexico.
Recording Secretary—John G. Harper, St. Louis.
Corresponding Secretary—Wm. Conrad, St. Louis.
Treasurer—James A. Price, Weston.

The next meeting will be held at Perle Springs, Warrensburg, Mo., the first Tuesday after July 4, 1888. WILLIAM CONRAD, Cor. Sec'y.

SOUTHERN DENTAL ASSOCIATION.

The meeting of the Southern Dental Association, at the Hygeia Hotel, Old Point Comfort, Va., August 30th, promises to be a grand success, if not the largest meeting of the dental profession on the continent. The Central Traffic Association, as well as the Southern Passenger's Association, will give reduced rates to those who wish to attend. Those purchasing tickets from Central Traffic Association agents will get certificates from railroad agent when procuring tickets, which will enable the holder to return from "Old Point" for one-third fare. Those who wish to take advantage of the reduction offered by the Southern Passenger's Association will address Dr. J. Y. Crawford, Corresponding Secretary, Nashville, for certificates, which will enable the holder to make the trip by paying one and one-third fare. Tickets good twenty-four hours after adjournment of meeting. The Virginians and our grand old President, Dr. W. W. H. Thaxton, are exerting themselves to make the meeting a grand one. A cordial invitation is extended to all, east, west, north and south.

J. Y. Crawford, Cor. Sec.

AMERICAN SOCIETY OF MICROSCOPISTS.

The Tenth Annual Meeting of the Society will be held in Pittsburgh, Penn., beginning August 30th, and lasting four days. The time is set for the week preceding the meeting of the International Medical Congress at Washington, and will therefore be convenient in both time and place for those who desire to attend both conventions. It is hoped that we shall have the pleasure of welcoming at this meeting distinguished men of science from abroad as well as from our own country, who may be on their way to the Medical Congress.

The arrangements made by the local committee are such as to secure a most agreeable social reunion and interesting general and special sessions. Hotel headquarters will be at the Monongahela House, and the sessions will be held in the chapel of the First Presbyterian Church.

D. S. Kellicott, Secretary. William A. Rogers, President.

ANOTHER CONUNDRUM.

Why is it that in about ninety-five per cent. of cases, a cut of the upper jaw shows more depression upon the left side in the region of the cuspid tooth than upon the right, requiring more filling up to restore contour, and longer teeth, in order to have the ends of the teeth level?

I have observed this for many years, and have asked many dentists the reason why, but have received no reply.

The only reason I can see for it is this: The most of people are *right-handed*, biting off food at that corner of the mouth; if the teeth are in good condition, *chewing* more upon that side than the other, and as a result the bone is developed more upon the right side.

Is this the cause? If not, will some one "rise and explain?"

L. P. Haskell.

GERMAN DENTAL TITLES.

Before the consolidation of the German Empire every man who entered upon business, whether professional or secular, was required to take out the proper license. When the Empire was formed, all except those who practiced a profession were freed from this obligation. Dentists were not considered as practicing a profession, but when it was seen that all classes of people were entering upon dental practice, the mistake was recognized and a law was passed requiring them to be licensed. A fee bill was established by law, but it was made so ridiculously low that it is quite impossible to practice by it, even the veriest quacks demanding more. For instance, the fee bill allowed by law only gave to the dentist from thirty-seven to fifty cents for filling a tooth, and the same for regulating each tooth. The dentists' position in Germany has, therefore, always been an exceptional one.

The law not only determines fees, but it establishes grades of standing and reputation, Thus the Hof-Zahnarzt, or Zahnarzt-Doctor, may be said to be equivalent to the American M. D., D. D. S., the Zahnarzt to the D. D. S., while the Zahnkuenstler has no degree and is permitted to do only mechanical work. The title "Professor" is conferred by government, and the "Professor Doctor" is the highest distinction in the profession.

A RIGHT UPPER CANINE TOOTH IN THE LEFT ORBIT.

Dr. John Ward Cousins reports in the *British Medical Journal*, April 23, 1887, a very interesting case of a child two years old, from whom he removed a tumor of the left orbit, which proved to be a supernumerary and misplaced right upper canine tooth. The crown of the tooth was enclosed in a sac, and the fang was attached to the orbital plate by fibro-cartilage. On examination the teeth in the mouth were found in a normal position, complete in number, and well formed. The jaws were also large and fully developed for a child two years old.

Cases of misplaced teeth, in strange situations, have often been recorded. These irregularities, however, are not associated with any special shape of jaw, or deficiency of size in the dental arch. The teeth are generally found to occupy an inverted position in the bone to which they are attached. They have been erupted in the hard palate and in the nares, but Dr. Cousins has been unable to find an instance on record of a tooth appearing in the orbit. The occurrence of a *right* upper canine in the *left* orbit is certainly singular, and this crossed displacement must have taken place at a very early stage of embryonic life.

THE DIGESTIBILITY OF VARIOUS KINDS OF FOODS ACCORDING TO VANDERBECK.

Meats.—Easy to digest: mutton, venison, hare, sweetbread, chicken, turkey, partridge, pheasant, grouse, beef. Hard to digest: pork, veal, goose, liver, heart, brain, lamb, duck, salt meat, sausage. *Fish.*—Easy: turbot, haddock, flounder, sole, oysters, trout, pike. Hard: mackerel, eels, salmon, herring, salt fish, lobster, crabs, mussels, cod. *Vegetables.*—Easy: asparagus, French beans,

cauliflower, beets, potatoes, lettuce. Hard: artichoke, celery, spinach, boiled cabbage. *Fruits, etc.*—Easy: baked apples, oranges, grapes, strawberries, peaches, cocoa, coffee, black tea, claret. Hard: apples, currants raspberries, apricots, pears, plums, cherries, pineapples, chocolate, pickles, beer.—*Journal of Reconstructives.*

Some curious evidences of the diet of our prehistoric ancestors of the "stone age" were recently brought before the Odontological Society of Great Britain, by Mr. Charters White. Mr. White was struck with the thought that, as particles of food become imprisoned in the dental tartar, sealed up in a calcareous cement, and can be made to reveal themselves on solution of this material, it would be an interesting revelation if the tartar found on these teeth of the stone age could be made to give up its secrets in a similar manner. He accordingly decalcified some with dilute hydrochloric acid and examined the sediment It consisted of masses, composed of epithelial scales mixed with the contents of starch cells. Besides these, Mr. White was able to identify portions of husks of corn, hairs from the outside of the husks, spiral vessels from vegetables, husks of starch, the point of a fish's tooth, a conglomeration of oval cells, probably of fruit, barblets of feathers, portions of wool and some fragments of cartilage, together with some other organic remains which he failed to recognize. The fact that vegetable tissue should be found in such a state as to be easily recognizable after the lapse of probably not less than three thousand years, is certainly remarkable.

A paternal government possesses some important advantages for the governed. It is not obliged to defer to every miserable demagogue who may be able to control a few votes, and it can afford to legislate against many petty and great swindles. There are in Germany, for instance, official chemists and examiners for foods, and every quack medicine is critically analyzed and its ingredients and character pitilessly exposed. A large proportion of these come from free America, where there is perfect liberty to commit fraud in these matters. Here is one exposition:

"Under the name '*Warner's Safe Cure*,' a brown liquid contained in flat bottles, holding about 500 grammes, is recommended as a remedy against kidney diseases, and sold at four marks per bottle. The official analysis, and the statement of a resident apothecary who sells the preparation, have shown that the article consists principally of American wintergreen, and its highest value is not over two marks. This notice is published for the information of the people."

Baron von Richtoven,
Berlin, March 30, 1887. President of Police.

Canadian dentists have not been frequent attendants upon the meetings of the American Dental Association. Even when we have met at Niagara or Detroit, upon the boundary line, but few have attended the sessions, while none have joined the Association, which has members from Long Island to San Francisco, and from Maine to Texas, but not one from Canada. Yet there is no reason why our Canadian brethren should not reap the advantages to be gained, as well as Americans. There should be a large delegation at the coming meeting at Niagara.

Scientific men have been perplexed for many years over the phenomenon of a certain well at Yakutsk, Siberia. A Russian merchant in 1829 began to dig the well, but he gave up the task three years later, when he had dug down thirty feet and was still in solidly frozen soil. Then the Russian Academy of Sciences dug away at the well for months, but stopped when it had reached a depth of 382 feet, when the ground was still frozen as hard as a rock. In 1844 the academy had the temperature of the excavation carefully taken at various depths, and from these data it was estimated that the ground was frozen to a depth of 512 feet. Although the pole of the greatest cold is in this province of Yakutsk, not even the terrible severity of the Siberian winter could freeze the ground to a depth of 600 feet. Geologists have decided that the frozen valley of the lower Lena is a formation of the glacial period, They believe, in short, that it froze solidly then, and has never since had a chance to thaw out.—*National Druggist.*

There are at present 1,435 people engaged in dentistry in the German Empire. Of this number, 505 are "approved" in Germany, 33 of whom are American graduates. Of the 94 practitioners who are graduates of American colleges, only 17 are females; 21 are "approved" in other countries, but not in America. There are 815 persons practicing mechanical dentistry without any other occupation. In the province of Hesse-Nassau there are 83 practitioners of dentistry, of whom 29 are "approved" in Germany, 4 being American graduates, and 14 from American schools exclusiveiy, 3 of whom are females. Two of these are "approved" in other countries (not America), and 38 mechanical dentists without other occupation. In 77 cities with over 10,000 inhabitants there is not a dentist, surgical or mechanical, and in 86 cities there are no surgeons, though there are in these places practitioners of mechanical dentistry.

—*Jour. f. Zahnheilkunde.*

Prof. Valenta recommends a simple procedure for keeping the hands soft. After washing and drying thoroughly, they are well anointed with cold cream; a small quantity of *spiritus saponatus* is poured in the hollow of one hand and this rubbed vigorously until a lather is produced; the fatty lather is merely rubbed off.

We have found no better preparation for the hands than the following, a little being taken in the hollow of one hand at night and thoroughly rubbed in. It should not be washed off till morning :—

℞

Pow'd Borax,	gr. xl.
Glycerine,	
Rose Water, aa.	℥ ii.

Sir James Paget has been carefully studying the question "What becomes of the doctors," and reports that of 1,000 medical students whose careers were carefully followed, 23 attained eminence or gained leading practices; 66 had considerable success, gaining more than ordinary influence in their immediate vicinity; 507 were fairly successful, being able to live by their profession alone;

124 had an exceedingly limited practice, and 56 failed entirely; 96 (or nearly one-tenth) abandoned the profession entirely; 87 died after entering practice, of whom 5 suicided, and 41 died while at college, most of them of phthisis, though two of them committed suicide. This compilation was made in England; in America the proportion that leave the profession to engage in other pursuits would be found to be much greater.

The Montreal meeting of the Connecticut Valley Dental Society was a memorable one on many accounts. Such hospitality and generous entertainment have seldom been tendered American dentists, and the visitors carried away the firm conviction that Montreal is the very home of good-fellowship. Indeed, it seemed as if there was no limit to the courtesies extended, and that Drs. Lovejoy, Bazin, Beers, Trestler, and—well, all the good fellows of Canada—had just determined to see what they could do when they really set themselves about the work. A great deal of commiseration was expressed for the few members of the Society who did not attend the meeting. In the next number of this journal will appear a report of the papers and discussions.

German dentists are throwing every possible obstacle in the way of American dental college graduates, particularly those Germans who come here to obtain diplomas. They are not allowed to call themselves "Zahnarzt," nor to use the titles "Doctor" and "American Dentist" in combination. They may use either separately, but cannot use their German equivalents. It will not be long, probably, before American dentists will be forbidden to practice. For this result and for the degradation of the American degree, we have to thank certain American dental colleges which have conferred degrees almost indiscriminately upon foreigners, many of whom were entirely unacquainted with the English language.

Billroth writes the following concerning antiseptics:

1. Iodoform is the safest and most effective of all manageable antiseptics.
2. Moss, wood, turf, mould and oakum are useful when there are discharges from the wound.
3. Corrosive sublimate in dilute solution is practically inert as an antiseptic to wounds, and renders the patient and surgeon alike liable to mercurial poisoning.
4. Carbolic acid, which is known to be dangerous in strong solutions, in weak ones is as good for wound irrigations as clean water, but probably is no better.—*Canada Lancet.*

The Western Medical Reporter says that there are 131 medical journals published in the United States, exclusive of 52 devoted to dentistry, hygiene and pharmacy. There are 80,000 physicians, and if each took but one journal it would give to the 131 journals a circulation of 610 copies each, but the truth is that many take a number of journals. Only 75 of the journals are credited with a circulation of 1000 and over, and but 7 with a circulation of 5000 or more.

Dr. Louis Ottofy, of Chicago, has prepared the most complete and elaborate examination chart for dentists that we have seen. It is eleven by eighteen inches in size, with proper blanks for all parental and personal characteristics of the patient, and the fullest statistics of the condition, history, development and abnormalities of the teeth, to be indicated by symbols, and the whole so grouped as to indicate all desirable information at a glance. Comparison of sets of these, properly kept by dentists in different portions of the country, would prove of great interest and value to practitioners. It is probable that copies can be obtained of the author as above.

"But, friends, your manifestation of sympathy has aroused an echo across the sea. In view of the spontaneous and generous action of American brethren, I am speechless! It is utterly unmerited on my part! It can only be construed as a graceful testimony of fraternal good will towards the whole profession on this side the water. As such I accept it; I could even rejoice in my affliction if it should be the means of strengthening in any degree the bonds of mutual esteem and good understanding between English and American dentists."—*Reply of W. H. Waite to presentation address.*

Dr. T. B. Wheeler, of Chicago, who went abroad a few months ago in the expectation of locating for the practice of his profession in Europe, has returned, and desires henceforth to be known as an American dentist, practicing American dentistry in America. A careful survey of the field has convinced him that there is no place like home, and that Chicago is quite as much within reach of all the good things of the world as any spot upon its surface.

Professor John F. Weir, the well-known artist and critic, and head of the Yale Art School, will contribute to the August number of *Scribner's Magazine* a paper on the "Revival of Handicraft," which is a plea for the spread of skilled labor. The interest which the whole subject of manual training is exciting adds special timeliness to this article.

Dr. Geo. A. Maxfield has reduced the science of making hard rubber and corundum or emery disks to a very fine point. At the Montreal meeting he made them by the quantity, and they were of a fine quality too. This journal will give an exposition of his method, which is a very simple one, at an early day.

Dr. Joseph Lathrop, of Detroit, after occupying an office at 152 Woodward Ave. for more than a quarter of a century, has removed to No. 271 in the same street. Even after so long a time—twenty-six years—he could not make up his mind to leave the neighborhood.

Dr. F. B. Darby, of Elmira, sailed for Europe early in the month of July, for a summer's vacation. We most heartily commend him to the favorable attention of our *confreres*, on both professional and social considerations.

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In reply to numerous inquiries in regard to my MECHANICAL MALLET and ENGINE (foot and suspension), that have been in successful operation for the past two years, I beg to state they will be placed upon the market in the autumn or early winter. Orders may be sent in for same, and they will be filled in rotation, as received.

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   Possessing unusual strength on account of their fine and close texture.

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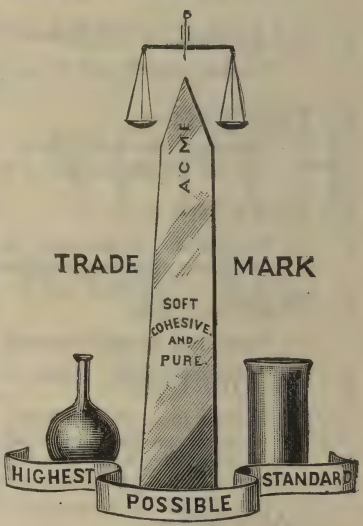

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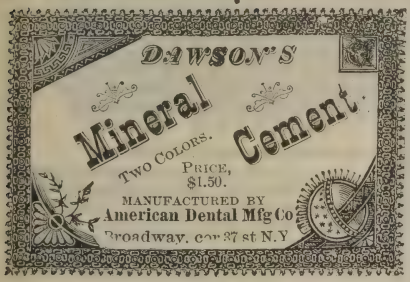

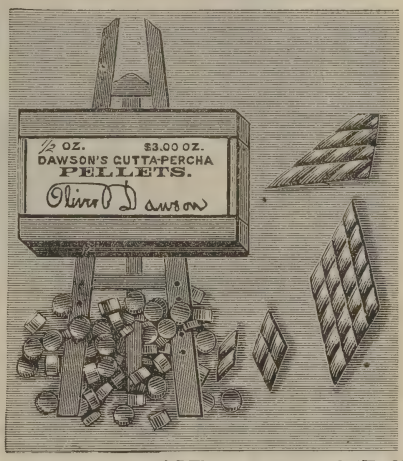

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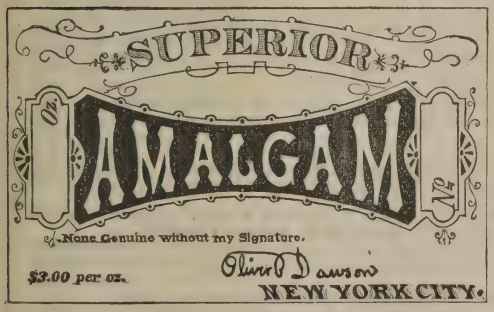

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Send for Essay and DISCUSSION before the British Medical Association at Brighton England, 1886, (Essay) by the Vice-President of The American Medical Association and others on the value of Murdock's Liquid Food over all Foods and Extracts known, it being the *only* Raw Condensed Food, free from insoluble matter.

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Its value was recognized by the profession from results obtained in the Free Hospitals that have been established and supported by our Mr. A. L. Murdock during the last four years. They now equal

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Our Liquid Food can be retained by the weakest stomach. Four tablespoonfuls daily will make eight per cent. new blood weekly. When used for infants, never change their food, but add five or more drops of Liquid Food at each feeding, and their lost or needed vitality will be restored in less than thirty days.

Send for the Report of the Chairman of the Section of Obstetrics of the American Institute of Homœopathy, read at Saratoga at the annual meeting of 1886.

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The Returns show that it is the Standard Food and Extract, as the percentage of lives restored was the largest when used.

We extract from the report. After calling attention to the fact that one-quarter of the homœopathic profession are accustomed frequently to prescribe this food for children less than a year old, as well as over, he remarks—

"It is singularly adapted to scrofulous, syphilitic, and tubercular constitutions, its life-restoring power manifesting itself in each with a relative clearness and power corresponding to the order of enumeration. For fair-haired children who are inclined to grow fleshy it is more symptomatically recommended, while Duncan's *acid* babies find it particularly useful. Accordingly it is chiefly employed for marasmus and anæmic conditions resulting either from non-assimilation of food or from simple summer complaints. Should a child vomit all milk food and suffer synchronously with diarrhœa or dysentery, the demand for this food is emphatic and unmistakable; also in general irritability of the stomach, particularly if there be sour-smelling diarrhœa, the food passing through undigested. For the prematurely born it stands pre-eminent. For those 'weak and debilitated from any cause, Murdock's Food is probably the best in the world.' Should any indication of cerebral hyperæmia appear, the quantity of food must be diminished; so, too, if after its protracted use, vomiting and diarrhœa ensue, the child has been overfed. *Should the taste or odor of any given bottle chance to be disagreeable, add water until they disappear, and let the purchaser congratulate himself upon getting more nutriment than he paid for.* When given in combination with milk in cases of indigestion, the quantity of milk should be diminished until all curds disappear from the stool, the quantity of Food, of course, being proportionately increased."

The Surgical Staff at Murdock's Free Hospital for Women are in daily attendance, except Saturdays, to examine patients and assign beds. **EVERY BED FREE.**

Our Free Surgical Hospital for Women, located on Huntington avenue, above West Chester park, contains fifty (50) beds, in charge of a staff of five surgeons, members of the Massachusetts Medical Society.

Our Free Surgical Hospital for Women, located on Gainsborough street, corner of Huntington avenue, contains 50 beds, in charge of a staff of five surgeons, members of the Massachusetts Homœopathic Medical Society.

Our Free Home for Homeless Boys contains 40 beds, and is located at 11 to 21 Causeway street. Many of these boys suffer from Scrofula, Eczema, and other skin diseases, which yield quickly by the use of our Liquid Food.

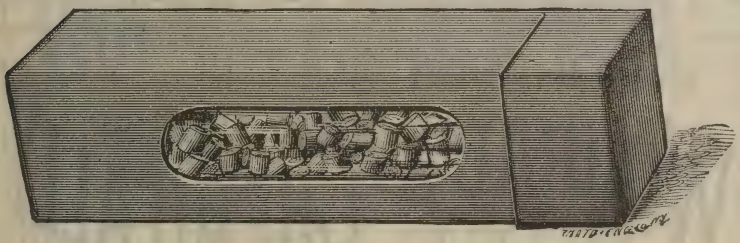
From the fact that no two beeves or sheep are alike is the reason of our different brands being different in flavor. All brands are made by the same formula. The letter represents the day of make, and the figure the tank.

If richer, it is stronger in smell and flavor, and will bear a greater reduction. It cannot be reduced so low but it will be superior to all other preparations in treating chronic cases.

If you cannot obtain Murdock's Liquid Food from your druggist, we deliver, free of express, 12 oz. for $1.00. Any physician that has not used our Liquid Food, we will deliver free to the Boston express 12 oz.

10-6-00-1 **MURDOCK'S LIQUID FOOD CO., BOSTON.**

EXTRA PLIABLE DECIMAL GOLD ROLLS.



(This Engraving represents a Phial of size 1 of the above designated Gold, inclosed in a Box.)

Gold Foil and Gold Rolls, per 1-10 ounce,	$3.00.	Per ounce, $28.00
Extra Pliable Decimal Gold Rolls, per 1-10 ounce,	3.50.	Per ½ ounce, 17.00
Untrimmed Foil, per 1-5 ounce book,		5.50
Ideal Cement, per package, with Pigments,		1.00
Rowan's Ideal Alloy, No. 1, per 1 oz. $5.00, 2 ozs. $9.00, 4 ozs.		16.00
Rowan's Ideal Alloy, No. 2, per 1 oz. $3.00, 2 ozs. $5.50, 4 ozs.,		10.00
Tin Foil (our make), very tough, per book,		.50

Try some of our "Ideal" Cement Filling and "Ideal" Alloy.

Appended are testimonials for our preparations of Gold from well-known gentlemen:

I have used the Rolled Gold of Edward Rowan & Co., and like it very much. I prefer high numbers—30, 60 and 120—for facility of adaptation to walls of cavities, capacity to bear high annealing and making solid work, I know no superior make.

W. H. ATKINSON,
October 23, 1882. 41 E. 9th Street, N. Y.

271 N. Eutaw Street. BALTIMORE, Md., June 5th, 1883.

GENTLEMEN—I have used nearly all of the last ounce of your "Extra Cohesive" Decimal Gold Foil No. 4, and it affords me pleasure to inform you that it has *proved* to be a *first-class article* in every respect. It is *cohesive* and *tough* in the *highest degree*, yet possessing *less harshness* than is usually found in cohesive foils. I cheerfully thus refer to it, and so long as you continue to make such foil, I want nothing better. Very respectfully,

JAS. H. HARRIS, M. D., D. D. S.

No. 100 Boylston Street. BOSTON, MASS., June 30, 1883.

Sirs—I have used your Rolled Gold for several years. When I wish to use *cohesive* gold, I prefer your No. 30 Rolled to any gold with which I am familiar. It is very tough, soft and cohesive. In short, pleasant and easy to work, and makes a compact, even and finished filling. Yours truly,

L. D. SHEPARD,
Late Professor of Operative Dentistry, Harvard University.

S. H. GUILFORD, A.M., D.D.S., (*Professor of Operative and Prosthetic Dentistry, Phila. Dental College,*) has permitted us to state that he uses and recommends our "Gold Rolls."

DR. H. J. MCKELLOPS, of St. Louis, writes us, under date September 16, 1884, "You may use my name in connection with your Gold with pleasure."

H. C. REGISTER, M. D., D. D. S., of Philadelphia, writes us, "You are permitted to use my name in recommending your Gold, as second to none in the world!"

CHAS. L. STEEL, M. D., D. D. S., of Richmond, Va. (*Demonstrator Operative Dentistry, University of Maryland*). DEAR SIRS—Your last ounce of Gold duly received, and, as usual, works superbly. I have used many makes of Cohesive Foil, but for some time past have confined myself to yours exclusively, as I find none other so near perfection.

A. H. FULLER, M. D., D. D. S. (*Professor of Operative Dentistry, Missouri Dental College*). Should you so desire you may state that I have been using your Gold for the past year or more, and find it first-class in every respect. Shall send you an order in a few days for more.

WM. CARR, M. D., 35 West 46th Street, New York, permits us to state that he endorses our Golds. He uses Nos. 3 and 4 soft; No. 60 Rolled; and Gold Rolls.

EDWARD ROWAN & CO.

No. 1048 Third Avenue, S. W. Corner 62d Street, New York.

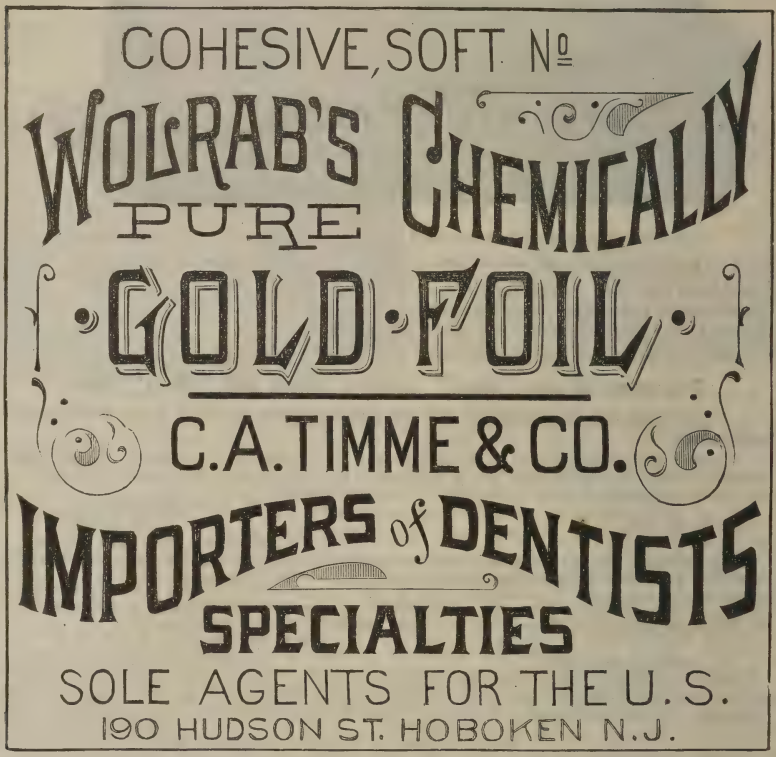
USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

REFERENCES FURNISHED ON REQUEST.

C. A. TIMME & CO. Importers of

CASH MUST ACCOMPANY THE ORDER.



CASH OR MONEY REFUNDED

Foil, $4.00 per ⅛ oz., $15.00 per ½ oz., $30.00 per 1 oz.

On orders of two ounces and more at a time a reduction of 50 cents per ounce will be given.

This gold is made in reference to the HERBST method of filling teeth with the engine. It has also proven a very desirable article for the *mallet* and *hand-pressure.*

We claim it to be superior to any other make for its peculiar *softness.* It easily adapts itself to the walls of the cavity, and when properly manipulated it makes a *solid* and *cohesive filling.* If it is to be used cohesively, a slight *warming over* the flame will have the desired result.

Very good reports have been received from prominent practitioners.

Timme's Imported German Phosphate Cement, per box, $1.00.

CASH MUST ACCOMPANY THE ORDER.

CASH OR HABEN FOR TRADE PURPOSES.

1803

WOLRAB'S CELEBRATED GERMAN GOLD.

№ 0 1 2 3 4

CHEMICALLY PURE

for the HERBST METHOD

MADE EXPRESSLY of filling TEETH

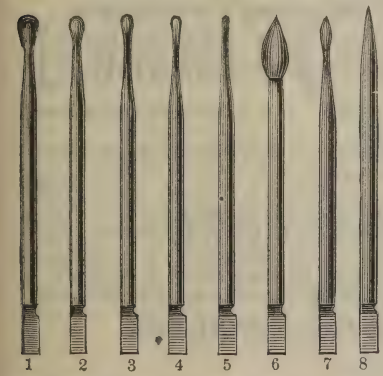
C. A. TIMME & Co. IMPORTERS OF DENTISTS SPECIALTIES

Hudson St. HOBOKEN N.J.

SOLE AGENTS FOR THE U.S.

Cylinders, $4.50 per ⅛ oz., $17.00 per ½ oz., $34.00 per 1 oz.

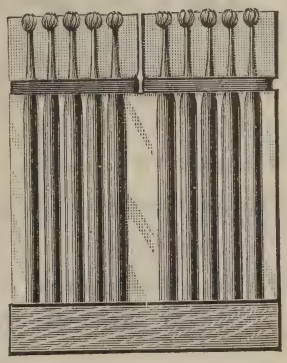
Instruments for the Herbst Method



1 2 3 4 5 6 7 8

Made of Agate, per set, - - - $10.00
The same made of Steel, as shown in the cut, per set, - - - - 4.00

Imported Burs, Stone Cut.



Unequaled in temper, arranged on wooden cards, per card of ten, - - - $ 3.00
In boxes of ten cards, - - - 25.00

3-5-AN-2.

HARDMAN'S WHITE ALLOY

Takes the place of gold for filling front, or any teeth.

PRICE, $3.00 PER OZ.

Test for Color—Place a button of Amalgam, that has one surface polished, into a solution of 40 to 60 grs. of sulphuret of Pottassa in 1 oz. of water. Let remain 24 to 48 hours.

Test for Leakage—Fill a small glass test tube with it, just as you would a cavity in a tooth, and drop it into a bottle containing an alcoholic solution of red aniline.

This Alloy Stands These, and Any Other Tests Deemed Requisite to Perfection.

HARDMAN'S SUPERIOR AMALGAM

Surpasses all others for strength and density of texture. Use it for Crown Work, in Molars, &c.

PRICE REDUCED TO $4.00 PER OZ.

Large discounts on both of these in quantities.

MADE AND FOR SALE BY

J. HARDMAN, MUSCATINE, IOWA.

If your depot does not keep them send to the proprietor for them.

8-4-AN-¼

DIBBLE'S WHITE AMALGAM

A Gold Alloy. $5.00 per ounce.

Manufactured only by

W. H. DIBBLE, MIDDLETOWN, CT.

For sale by S. S. WHITE DENTAL M'F'G CO., or sent by mail by the manufacturer.

ALSO MANUFACTURER OF THE DIBBLE PLUGGER.

THE FOLLOWING TESTIMONIALS ARE RESPECTFULLY OFFERED.

Dibble at present is ahead on Amalgam.
NEW YORK, Jan. 9, 1883. J. W. CLOWES, 667 Fifth Avenue.

I believe it to be the best article of the kind in use.
W. H. DWINELLE, M. D., 27 West 34th St., New York.

I take pleasure in recommending it as the best now known.
GEORGE H. PERINE, 74 West 50th St., New York.

Have used it three years, and it has given me better results than any other.
O. E. HILL, M. D. S., 160 Clinton St., Brooklyn, N. Y.

I am satisfied it is the best in use. I can recommend it to the profession.
C. E. GRAVES, 393 Jay Street, Brooklyn, N. Y.

It is the best I have ever used. MILES H. DODGE, 20 E. 33d St., New York.

$5.00 per oz. or 3 oz. for $12.50. Sent by Mail.

3-5-AN-½.

E. KEARSING'S

COHESIVE AND SOFT

GOLD FOIL,

Used by many of the prominent dentists in this country and abroad.

——ALSO EXTRA FINE——

TIN FOIL AND AMALGAM.

MR. E. KEARSING, *Dear Sir:*—After having used your gold foil for five years, I can say that it gives me better satisfaction than any other that I have used. For restorations and all work where I greatly depend upon cohesive qualities it never fails.

Yours truly, A. H. SCOFIELD, D. D. S.,
113 W. 47th St., New York City.
September 8, 1884.

MR. E. KEARSING:—After using your gold foil about five years with great satisfaction, I feel that I cannot get along without it. It is especially valuable for small cavities, and for fine work in approximal cases. Respectfully, J. N. FARRAR.

MR. E. KEARSING, *Dear Sir:*—After having used your gold, both soft and cohesive, for nearly five years, I find it has given me entire satisfaction in all cases.

Yours truly, J. BOND LITTIG, D. D. S.,
113 W. 47th St., New York City
September 13, 1884.

Dear Sir:—After using your gold foil almost uninterruptedly for the last six years, I have no hesitation in stating that it stands without a rival for performing what are known as contour operations. It answers equally well for small fillings unannealed when properly manipulated. Very truly, H. C. LONGNECKER.

FLUSHING, L. I., Sept. 11, 1884.

E. KEARSING, ESQ., *Dear Sir:*—In reply to your inquiry about my opinion of the merits of your Gold Foil, I can say frankly, after having had over thirty years' acquaintance with it, that it works and wears beautifully. No gold foil ever had a better endorsement than that given your gold foil by the late Dr. Marshall H. Webb, whose elegant operations live to do honor to him and reward you. Your cohesive foil, No. 4, folded into 32 or 48, is daily giving me great satisfaction, being uniformly impacted from beginning to end of the filling with the Electric Plugger. Yours very truly, E. PARMLY BROWN.

101 HOYT STREET,

P. O. Box 182. BROOKLYN, N. Y.

7-4-AN-½

"THE OLD RELIABLE."

LAWRENCE'S AMALGAM.

RES NON VERBA

LAWRENCE

TRADE MARK

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the Trade should be addressed accordingly.

Price, $3.00 per Ounce. For sale at all respectable Dental Depots.

Manufactured only by

AMBROSE LAWRENCE, M. D., 476 Columbus Avenue, Boston, Mass.

10-4-AN ¼

The Wilmington Dental Manufacturing Co.

MANUFACTURERS OF

ARTIFICIAL TEETH,

Nos. 1010 and 1012 KING STREET,

WILMINGTON, DELAWARE.

Having been justly recognized as manufacturing a very SUPERIOR TOOTH at a very moderate PRICE, they now avail themselves of this medium by which they hope to present their merits to the Dental Profession. They have now perfected their designs as to the character of their MODELS, and have fully succeeded in being able to present to the Dentist an opportunity to select a SHADE of enamel which will harmonize and correlate with that of the natural tooth.

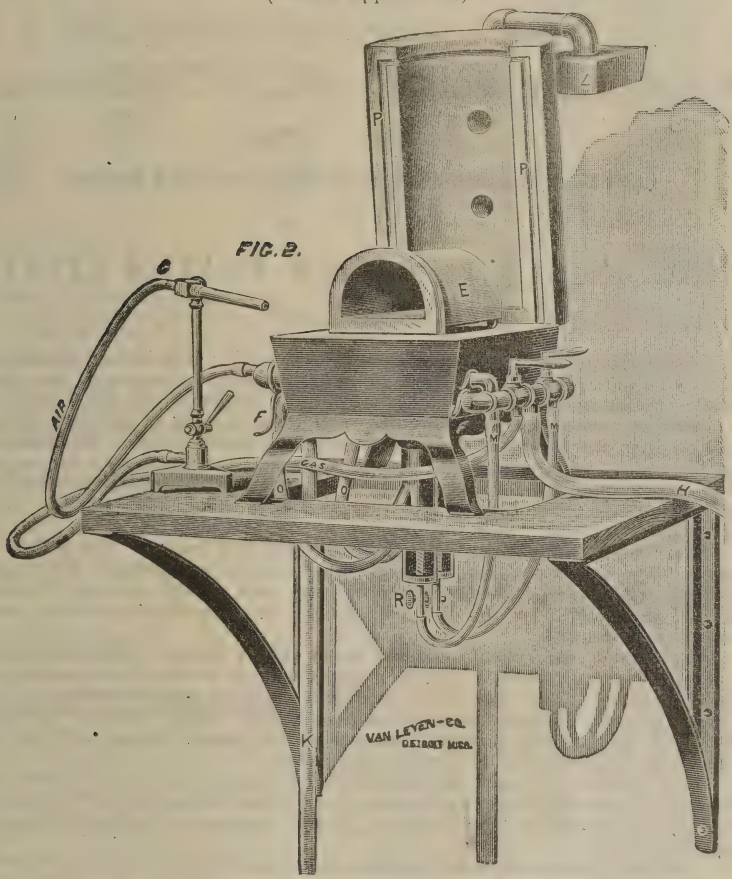
☞ *For sale by Dental Dealers everywhere. Send for price list.*

DR. C. H. LAND'S

COMPOUND

GAS OR GASOLINE FURNACE

(Patent Applied for.)



Size No. 1, especially adapted for all kinds of muffle work, crucible work, blow-pipe work, forging and brazing. It is the most complete furnace ever devised for the chemist, assayer, jeweler, dentist and metallurgist. Continuous gum and porcelain can be baked in from 15 to 20 minutes in the most perfect manner and with unerring precision. Send for descriptive circular.

Instructions—In order to enable those who contemplate using gas furnaces and to comprehend their great superiority over coal or coke fires, my laboratory will be open free to all, and with those who desire a special course in continuous gum work, enamel metallic coatings and enamel fillings, favorable arrangements can be made. A visit to my laboratory will be of the utmost value. Here furnaces are operated by both foot and steam power, using either gas or gasoline. Thus practical working can be seen to the best advantage.

Address, C. H. LAND, 264 Woodward Ave., Detroit, Mich.

10-6-AN 1.

DALY'S CHEMICALLY PURE

GOLD LINING

RUBBER SORE MOUTH CURED AND PREVENTED.

Each Book Contains 8 Square Inches of Gold Lining.

NEW AND OLD RUBBER PLATES LINED.

This lining presents advantages that no other can. It is formed entirely of chemically pure gold. It is united mechanically with the rubber of the plate without the intervention of any other metal or of rubber or any other cements.

Being so formed and so united there can be no tarnish or chemical change of state from the action of the secretions of the mouth, or from the effects of galvanic action between different metals in contact. Its union with the rubber is so perfect that it cannot be separated from it, and its removal involves the destruction both of the lining and the portion of rubber with which it is in contact.

Every surface of the plate can be lined with it if desired. Old plates, no matter how long worn, can be lined with it, preserving perfectly the fit and articulation. Being formed entirely of pure gold it will not only prevent rubber sore mouth, but will cure that disease, when applied to rubber plates that have produced it.

That rubber sore mouth prevails under rubber plates to an alarming and much greater extent than is generally appreciated, is proven by the testimony, based on actual observation, of such eminent men in our profession as Drs. Taft, Atkinson, Walker, Kulp, Dorrance, Cutler, Allen, Eames, Cushing, Morrison, Judd, Flagg, Younger, Sturgiss, H. A. Smith, Crouse, and others, as well as of members of the medical profession.

This testimony is found on record in the printed proceedings for the last twenty years of such bodies as The American Dental Association, The American Dental Convention, The Southern Dental Association, and many District and State Societies.

The cost of lining plates will be seen to be small by taking the price of a book of it and counting how many plates of different sizes can be covered by eight square inches of lining—the amount contained in each book. Full instruction with each book.

Price per book, - - - - - - - $3.50.

DALY GOLD LINING DENTAL CO.,

AND ALL DENTAL DEPOTS. **WASHINGTON, D. C.**

10-6-an-1.

COMPOSITION
SILVER STRIPS.

(PATENT APPLIED FOR)

Invention of Dr. E. Parmly Brown.

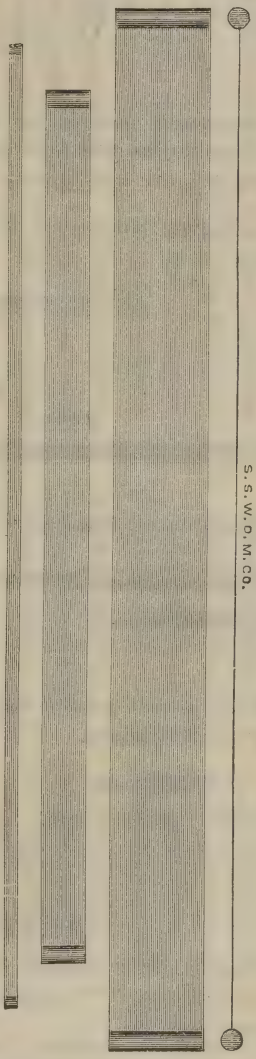
For dentists' use in polishing between the teeth and dressing approximal gold fillings.

To be used with wet pulverized pumice, or other suitable powder.

Can be smoothed out, after being used, by being drawn between the folds of a towel or over the edge of a table.

Put up in packages of one dozen, in a variety of sizes.

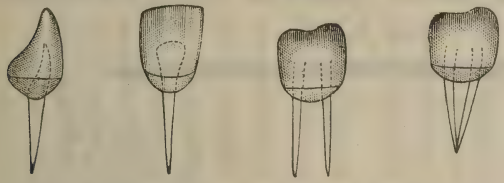
Price, ... per package, 50 cents.



DR. E. PARMLY BROWN'S TOOTH CROWNS.

PATENT APPLIED FOR.

FIG. 1. FIG. 2. FIG. 3. FIG. 4.



These cuts represent position and shape of pins in the tooth.

For full description, see *Dental Cosmos*, September, 1886, pages 583, 588 and 589.

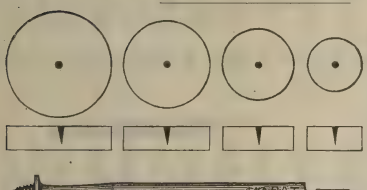
PRICES,

Brown's Tooth Crowns, . . . each 65 cents.

SOLD BY WELCH DENTAL CO.

MOOSE-HIDE POINTS FOR DENTAL ENGINE.

For Carrying Pumice or other Powders to Clean Teeth or Polish Fillings.



Designed and introduced by Dr. E. Parmly Brown, who claims that these Moose-hide Points are more efficient than any other engine polisher heretofore offered to the profession. A moment's use when wet causes them to conform perfectly to the surfaces to which they are applied, when they become like a brush, passing readily between the teeth to the point of close contact. Their extreme toughness gives them a firm hold on the mandrel. They can be used on any screw mandrel, but a medium sized screw and a medium length of mandrel as shown in cut are recommended by Dr. Brown as most satisfactory. A thimbleful of pumice-powder should be mixed with water in a small dish, and into this the Point should be dipped from time to time. A fresh Point should, of course, be used for every case.

Put up in boxes containing thirty Points, assorted sizes.

Price, ... per box, 50 cents.

No Dental office should be without

DR. BROWN'S UNIVERSAL SCREW CLAMP,

(CLAMP AND KEY, Nickel-Plated, $4.00.)

His *Depressed Dental Rubber Dam* is now being manufactured thin, and of the very best quality of Rubber, put up in boxes of twenty,

ONE DOLLAR PER BOX.

VARIOUS FORMS OF HAND-PIECE TOOLS

MANUFACTURED BY

The S. S. White Dental Manufacturing Co.

As several devices for holding tools in the different Hand-pieces have been placed on the market from time to time, we illustrate the various forms to enable parties to order intelligently.

PLEASE SPECIFY THE STYLE WANTED WHEN ORDERING.

Style A.

Patented Sept. 10, 1872.

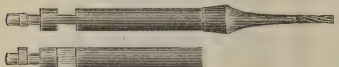
Style B.

Patented Sept. 10, 1872.

Style C.
For the "C" and Cone-Journal No. 1 Hand-pieces.

Patented Feb. 24, 1874.

For Cone-Journal Hand-pieces Nos. 2, 5, 6.



Patented Feb. 24, 1874; *March* 25, 1879.

No. 4.
For the No. 4, No. 7, and Universal Hand-pieces.

Patented June 2, 1874; *Dec.* 5, 1876; *May* 21, 1878; *Re-issue Aug.* 6, 1878.

There are at present two forms of bits for Right-Angle Attachments, of which we give illustrations.

For No. 1 Right-Angle.

Patented June 2, 1874; *Dec.* 5, 1876; *May* 21, 1878; *Re-issue August* 6, 1878.

For No. 2 Right-Angle.

ALTERING ENGINE-BITS.

Dentists having burs which were made for other Hand-pieces can have them altered to fit the Cone-Journal. The change involves an addition to the shank, necessitating a charge of fifty cents a dozen.

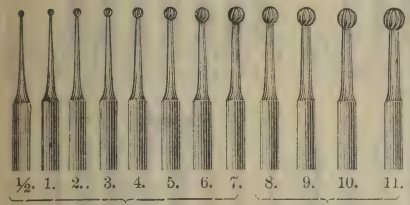
We have recently published a Price List of our Dental Engines and Equipments, which will be sent on application.

THE S. S. WHITE DENTAL MANUFACTURING CO.,

PHILADELPHIA, NEW YORK, BOSTON, CHICAGO, BROOKLYN.

EXCAVATING BURS FOR ENGINE.

Round.

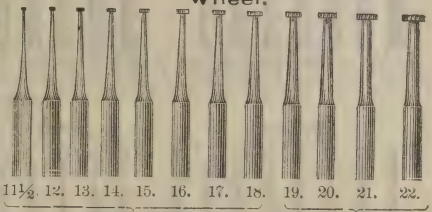


½. 1. 2.. 3. 4. 5. 6. 7. 8. 9. 10. 11.

File-cut, $2 25 doz. Stoned 3.00 "

File-cut, $3.00 doz. Stoned 4.00 "

Wheel.

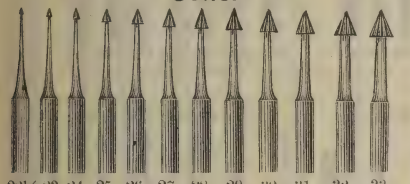


11½. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22.

File-cut, $2.25 doz. Stoned 3.00 "

File-cut, $3.00 doz. Stoned 4.00 "

Cone.

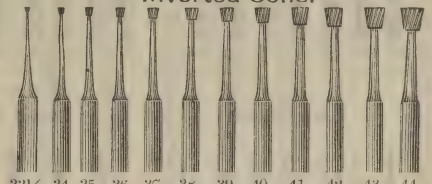


22½ 23 24. 25. 26. 27. 28. 29 30. 31. 32. 33.

File-cut, $2.25 doz. Stoned 3.00 "

File-cut, $3.00 doz. Stoned 4.00 "

Inverted Cone.

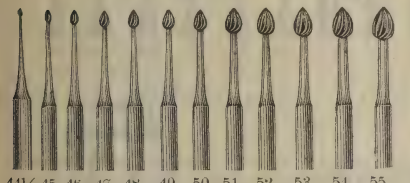


33½. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44.

File-cut, $2.25 doz. Stoned 3.00 "

File-cut, $3.00 doz. Stoned 4.00 "

Bud.

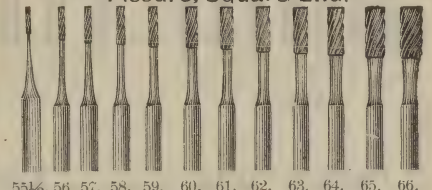


44½.45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55.

File-cut, $2.25 doz. Stoned 3.00 "

File-cut. $3.00 doz. Stoned 4.00 "

Fissure, Square End.

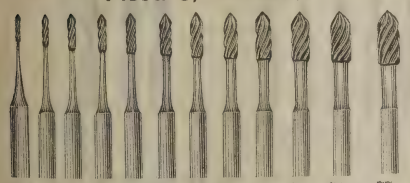


55½. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66.

File-cut, $2 25 doz. Stoned 3.00 "

File-cut, $3.00 doz. Stoned 4.00 "

Fissure, Pointed.

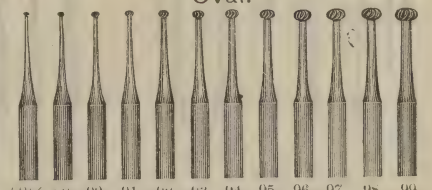


66½.67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77.

File-cut, $2 25 doz. Stoned 3.00 "

File-cut, $3.00 doz. Stoned 4.00 "

Oval.



88½. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99.

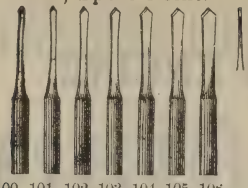
File-cut, $2.25 doz. Stoned 3 00 "

File-cut, $3.00 doz. Stoned 4.00 "

Burs and Drills for the Right-Angle, Acute-Angle, and Obtuse-Angle Attachments are the same price as those for direct action, but they are not made larger than No. 6, bur gauge,—size of No. 7 Round Burs. Larger sizes of Burs are destructive to the delicate mechanism of these attachments, and we do not advise their use, but if they are insisted on, we will make them—to order only.

DRILLS.

Flat, Spear Point.

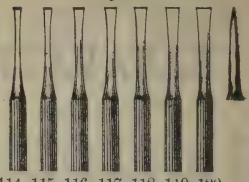


100. 101. 102. 103. 104. 105. 106.

Square.

107. 108. 109. 110. 111. 112. 113.

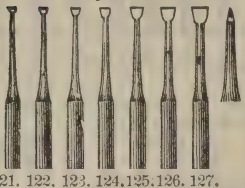
Flat, Square Point.



114. 115. 116. 117. 118. 119. 120.

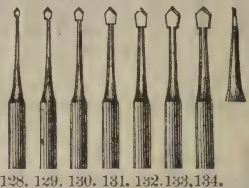
$2.00 doz.

Spade.



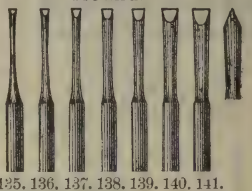
121. 122. 123. 124. 125. 126. 127.

Forbes's



128. 129. 130. 131. 132. 133. 134.

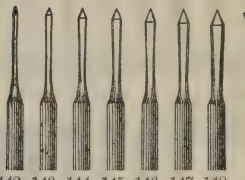
Round.



135. 136. 137. 138. 139. 140. 141.

$2.00 doz.

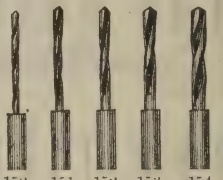
Five-Sided.



142. 143. 144. 145. 146. 147. 148.

$2.00 doz.

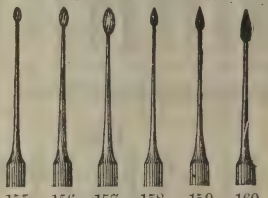
Twist Drills.



150. 151. 152. 153. 154.

$3.60 doz.

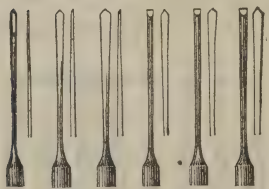
"Flexible" Burs.



155. 156. 157. 158. 159. 160.

$4.20 doz.

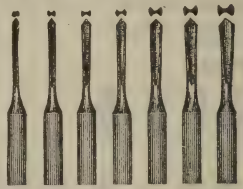
"Flexible" Drills.



161. 162. 163. 164. 165. 166.

$2.00 doz.

Ambler Drills.



167. 168. 169. 170. 171. 172. 173.

$2.25 doz.

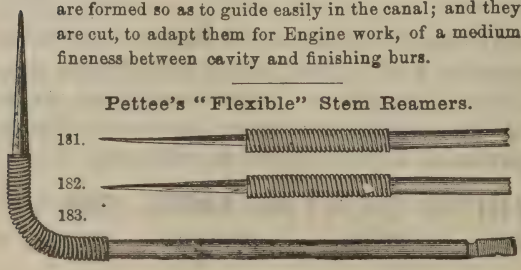
Talbot's Reamers.

178. 179. 180.

$4.80 doz.

The "Flexible" Burs and Drills have spring-tempered stems, longer than regular stock. The bur-heads are formed so as to guide easily in the canal; and they are cut, to adapt them for Engine work, of a medium fineness between cavity and finishing burs.

Pettee's "Flexible" Stem Reamers.



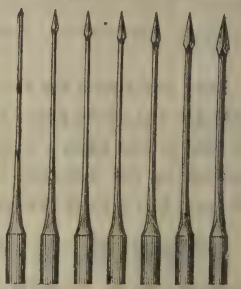
181.

182.

183.

75 cents each.

Brewer's Drills.

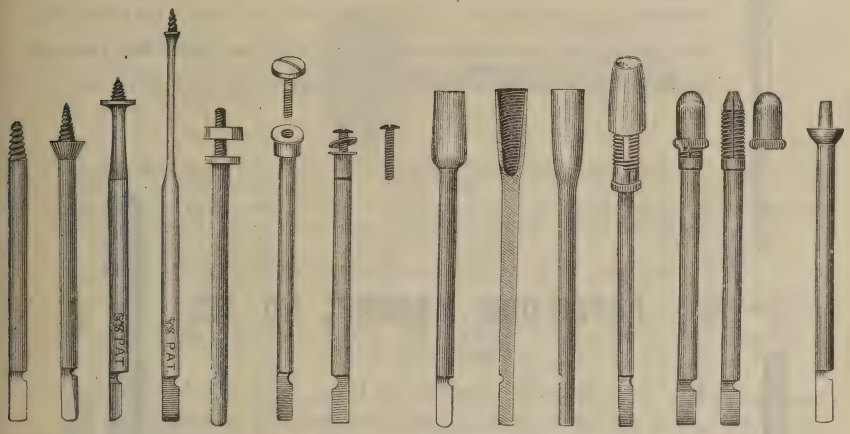


184. 185. 186. 187. 188. 189. 190.

$4.80 doz

THE S. S. WHITE DENTAL MFG CO.,
PHILADELPHIA, NEW YORK, BOSTON, CHICAGO, BROOKLYN.

MANDRELS, PORTE-POLISHERS, ETC.



300 301 301½ 301¼ 302 303 304 305 306 307 308 309

No. 300 —Screw-Mandrel, without shoulder, - - - - 7 cts.
" 301 — " with shoulder, - - - - - 20 "
" 301½— " " " - - - - 20 "
" 301½—Screw-Mandrel, with shoulder, hardened and tempered, Nickel-plated, - 20 "
" 302 —Parting-Nut Mandrel, Right or Left-Hand, Nickel-plated, - 25 "
" 303 —Dr. Huey's Screw-Head Mandrel, Right or Left-Hand Screw, - 25 "
The Right-Hand Screw has a single slot; the Left-Hand, two slots.

This Mandrel, *with right-hand screw only*, is also made with spurs on the shoulder for holding sand-paper, rubber, and felt disks. Price, 35 cents.

No. 304—Disk-Carrier Mandrel. With 2 Screws and Washer, complete, - 25 cts.
Extra Screws, each 5 cents. Extra Washers, each 1 cent.
" 305—Porte-Polisher, Plain Socket, - - - - - 25 "
" 306— " Screw-Socket, Nickel-plated, - - - 25 "
" 307—Dr. Klump's Screw-Clamp Porte-Polisher, - - - 35 "
" 308—Needle-Chuck for carrying very fine retaining-pit drills made from sewing-needles. Three sizes. A will hold firmly sizes 5 and 6, Smith's Sharps; B sizes 7 to 9; C sizes 10 to 12. Price, either size, $1.25.
A large-sized Needle-Chuck for holding How's Twist-drills and Bits of similar calibre is now on sale. It is designated as "X." Price, each, $1.25.
" 309—Dr. Harris's Disk-Mandrel. For mounting corundum disks. In mounting disks warm the end of the Mandrel. Price, each, 20 cents.

PAPER-DISK MANDREL No. 311.

This Mandrel has a feathered pin which passes through the paper disk, enters the split head of the Mandrel, and is firmly clamped therein by the slide-ring. The disk is pierced by the feather, and truly centered by the pin, so that no time is lost in adjustment; and the worn-out disk may be quickly removed by sliding back the ring and pulling out the pin with the disk, or with the thumb-nail inserted in the pin-head groove. The device is very simple and effective.

PRICE.

Paper-Disk Mandrel No. 311, . . . each 50 cents.

Specify the Hand-piece used.

PAPER-DISK MANDREL NO. 312.

Patented Feb. 9, 1886.

This Mandrel—invented by Dr. J. W. Smith—has on the face of its split head four spurs, which penetrate the disk when the recessed cap-pin is pushed against it, firmly clamping it in the Mandrel by the slide-ring.

The reverse movement of the slide-ring permits the ready release of the cap-pin with the used-up disk.

Paper, rubber, or felt disks may be quickly attached to or detached from this excellent device.

Price, ... 50 cents.

Specify the Hand-piece used.

MANDRELS Nos. 313 and 314.

Suggested by Dr. S. G. PERRY.

No. 313 is practically the same as the Huey Mandrel No. 303, but instead of the screw having a slotted head it is drilled out in the center and squared so as to admit the pointed screw-driver, which fits the opening closely and prevents the loss of the screw No. 314 works upon the same principle, but is much smaller and designed for carrying very small disks. The cuts are full size.

Mandrels Nos. 313 and 314, . . . each 50 cents.

Screw-Drivers, ... " 25 "

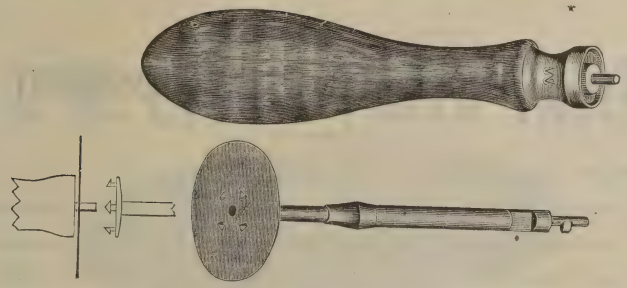
No. 314 was especially designed for Minim Disks.

313. 314.

THE S. S. WHITE DENTAL MFG. CO.,

Philadelphia. New York. Boston. Chicago. Brooklyn.

MANDREL No. 310, WITH ADJUSTING HANDLE.



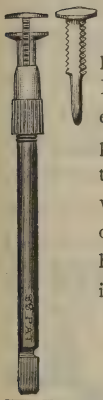
For mounting and carrying flexible disks. The quick method of application is shown in the sectional cut. When thus adjusted, the disk is held by the barbed spurs sufficiently firmly to be curved upon posterior approximal surfaces with but little danger of becoming detached. Price, complete, 80 cents.

Mandrel, separately, . 50 cents. | Handle, ... 30 cents

In ordering, please state the Hand-piece you wish them for.

PAPER-DISK MANDREL No. 315.

Patented May 10, 1887.



This Mandrel, invented by Dr. H. C. Register, has a feathered pin which passes through the paper disk, enters the slotted head of the Mandrel, and by means of the screw-thread on the edges of the feather, is engaged with the threaded sleeve which draws the head of the pin toward the head of the Mandrel, and firmly clamps the disk between them. It will run in either direction, and no manner of use will dislodge the disk without destroying it. The disk is easily and quickly removed by extending the thumb and finger of the hand which holds the hand-piece and grasping the milled sleeve while the Mandrel is revolving to the right.

The thickest or thinnest disk will be securely held.

Price, ... each 50 cents.

In ordering state for which Hand-piece desired.

Improved Gates-Glidden Nerve-Canal Drills.

174. 175. 176. 177.

40 cents each.

In operating with these Drills it is to be observed that the smallest should be first used if the canal is narrow, because, as will be seen in the magnified illustration, the Glidden guide-point does not cut to enlarge the canal, but will merely guide the Drill into a canal no wider than itself, until it reaches the root-apex, through which only the sharp point will pass, and produce a sensation of pain that gives notice of its protrusion; yet, unless the foramen is wider than the base of the guide, the Gates Drill *will not cut through* the end of the root,—a danger that the improved Drill was specially designed to avoid.

Using the series, one after the other, with care and judgment, even a tortuous canal may be suitably enlarged; but it should be kept in mind that many roots are thin at their apical portions, and their canals, if much enlarged, may be cut through laterally; hence the advisability of employing usually the smaller sizes of drills.

To the Dental Profession.

GENTLEMEN:

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

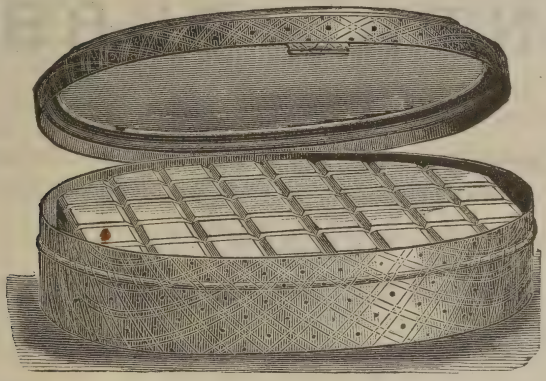
I. W. LYON, D.D.S.,

88 MAIDEN LANE, NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

DR. I. W. LYON'S TOOTH TABLETS



For Purity, Efficiency, Neatness and Convenience these Tablets have no equal as a Dentifrice. They are put up in Seamless Metallic Boxes, which are impervious to air and moisture, and may be carried on a journey without danger of breaking.

HIGHLY INDORSED BY EMINENT DENTISTS.

PRICE **50** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

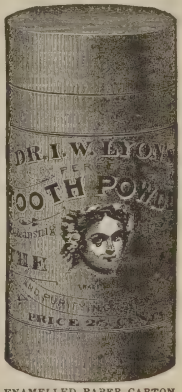
DR. I. W. LYON'S

PERFECT TOOTH POWDER

ENAMELLED METAL BOX REDUCED IN SIZE.

This Powder is carefully prepared by an experienced dentist, familiarized by practice with the wants of the teeth. It is absolutely pure and free from acid, grit, or other hurtful substances, and is highly recommended by the most eminent men in the profession. It gives a *delightfully refreshing sensation* in the mouth, strengthening and healing the gums, and imparting a fragrance to the breath which is very agreeable.

Put up in an enamelled metal box with sprinkler top, free from the mishaps incident to glass or wood, and very convenient for use, especially in traveling.



ENAMELLED PAPER CARTON REDUCED IN SIZE.

PRICE **25** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

I. W. LYON, D.D.S., PROPRIETOR,

88 MAIDEN LANE, NEW YORK.

3-5-AN-2

AKRON
DENTAL RUBBER

The materials of which this Rubber is composed . are prepared by new processes, which insure

ABSOLUTE PURITY,

Resulting in a Product of Wonderful

DENSITY, FIRMNESS AND STRENGTH.

It is especially designed to meet the requirements of those who seek to produce the most perfect and artistic work.

It is exceedingly tough and light, and takes a beautiful polish.

Plates may be made very thin without danger of splitting or crumbling away about the edges.

It can be used with the best results for making partial lower dentures, an advantage which no other rubber possesses.

It has the unqualified approbation and endorsement of the profession everywhere, and never fails to give satisfaction.

It will cost you nothing to try it.

Send for samples and prices.

AKRON RUBBER WORKS,

AKRON, OHIO.

Sold by all Dental Depots.

11-5-AN-1

PARSON'S EUREKA SILVER ALLOY.

I am manufacturing and offering for sale a superior Amalgam or Silver Alloy, which has the following properties: It is a quick setting alloy, has great edge strength, therefore a superior alloy for mounting artificial crowns on natural roots. Fillings may be finished and polished in fifteen or twenty minutes after inserting, and retain their polish and silvery whiteness remarkably.

It does not spheroid or bulge like many alloys of inferior grade.

If you wish to use one of the nicest working alloys in the market, send for ½ oz., **$1.50**; 1 oz., **$3.00**; or 4 oz. for **$10.00**.

Let the profession give my alloy a fair and impartial trial, and I feel confident I shall receive a liberal amount of patronage. Respectfully,

DR. W. H. PARSONS,

Sole Proprietor and Manufacturer. WAMEGO, KANSAS, U. S. A.

TESTIMONIALS.

HOUSTON, TEXAS, April 26, 1885.

DR. PARSONS—*Dear Sir:* The Alloy came safely to hand. I am very well pleased with it.
Very respectfully, DR. S. E. JONES.

ROCHESTER, N. Y., April 13, 1885.

H. W. PARSONS—*My Dear Friend:* The boxes of Amalgam were duly received, and I consider it very nice indeed. Respectfully Yours, DR. S. G. WOOD.

RICH HILL, Mo., Feb. 9, 1886.

DR. H. W. PARSONS—*Dear Dr.:* Yours of the 5th inst. at hand, and in reply would say your Eureka Alloy is the best I ever used. Respectfully, C. E. JONES, D.D.S.

COLUMBIA, Mo., March 16, 1886.

DR. H. W. PARSONS—*Dear Sir:* I have used your Eureka Silver Alloy for one year, and am much pleased with it. I find its properties all that you represent them to be.
Respectfully, DR. N. HOCKENSMITH.

7-6-00-½

The Prophylactic Tooth Brush,

The Florence Dental Plate Brush

Recommended and sold by all live dentists.

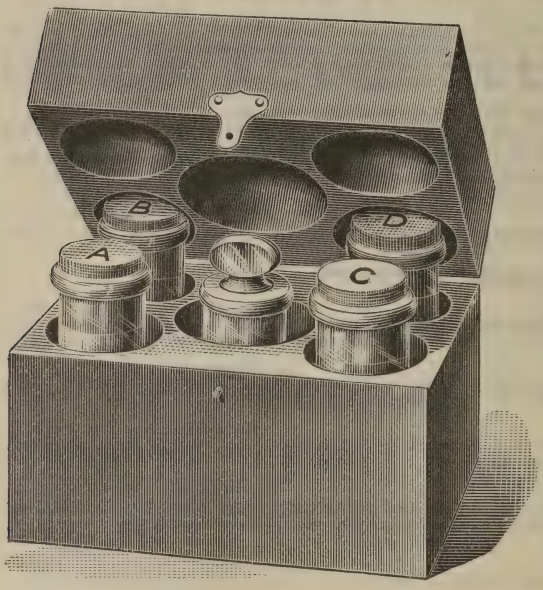
Order now, or, if before doing so you desire further information, write

FLORENCE MANUFACTURING CO.,

FLORENCE, Mass.

4-7-00-1

SMITH'S ADAMANTINE PHOSPHATE CEMENT.



INSOLUBLE.

TWO COLORS.

Price, - - $1.00.

Also in Cedar Cases, as shown in cut, containing four colors of Powder and one bottle of Liquid, glass-stoppered.

A, White; B, Brown; C, Yellow; D, Bluish.

PRICE, $2.00

SMITH'S

Oxychloride of Zinc.

PRICES—Plain Form, one-ounce, - - - - - - each $1.00
Cedar Cases, as shown in cut, containing four colors of Powder and one bottle of Liquid, glass-stoppered, - - - - - " $2.00
A, White; B, Brown; C, Yellow; D, Bluish.

10-6-00-½ **DR. J. H. SMITH, New Haven, Conn.**

TO INVENTORS.

If you desire to patent your invention, enclose your address, *with stamp for reply*, and the undersigned will take pleasure in giving you the benefit of his *large* experience with United States and foreign patent lawyers.

B. M. WILKERSON, M. D., D. D. S.,

(Inventor of the Wilkerson Dental Chair, etc.)

No. 1215 Madison Ave., Baltimore, Md.

12-6-00-½

PURE PRODUCTS FOR DENTAL PRACTICE!

Among the preparations we manufacture which are of use to the Dental Profession, we have pleasure in calling attention to the following, which we believe, on account of purity and convenience, will commend themselves to our dental friends.

COCAINE.

Cocaine Alkaloid, pure in crystals; Citrate solution, 4 per cent.; Hydrobromate, pure in crystals and in solution, 4 per cent.; Muriate, pure in crystals and solutions, 2 and 4 per cent.; Oleate, 5 per cent., and Salicylate solution, 4 per cent. Also *Complete Cocaine Case*, embracing every essential for topical and hypodermic use. Send for pamphlet.

Pure MENTHOL, in crystals and pencils; pure CHLOROFORM; BROMIDE OF ETHYL; NITRITE OF AMYL PEARLS, invaluable in case of sudden syncope and a restorative of enfeebled circulation.

PARKE, DAVIS & CO.,

MANUFACTURING CHEMISTS,

DETROIT, MICH. **New York Branch: 60 Maiden Lane.**

1-7-AN-⅓.

ALFRED J. NICKOLDS,

Refiner and Manufacturer of

Dentists' Chemically Pure 1000 Fine

GOLD FOILS, GOLD PELLETS,

TIN FOIL, ETC.,

238 McDonough Street,

BROOKLYN, N. Y.

Special attention is invited to *Nickolds' Improved Soft Gold Foil* and *prepared Pellets;* pronounced the best article of Gold Foil extant.

7-4-AN-¼

LINE YOUR RUBBER PLATES

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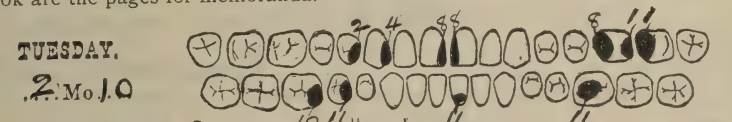

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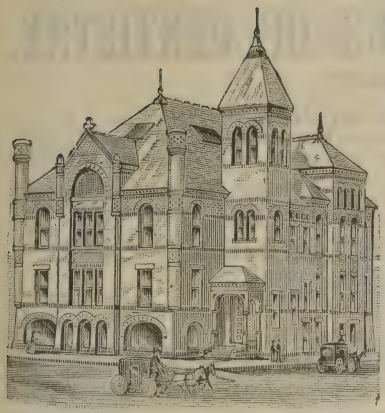

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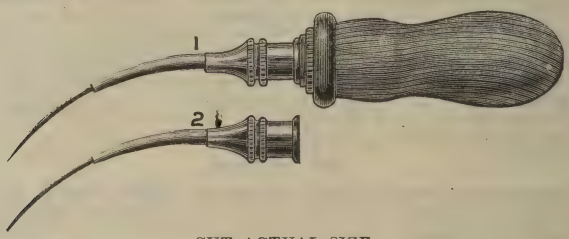

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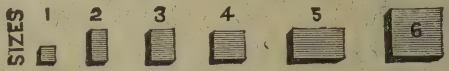

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Vol. VIII. SEPTEMBER, 1887. No. 9.

12 SEP 87

THE

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A Monthly Journal

DEVOTED TO

DENTAL AND ORAL SCIENCE.

W. C. BARRETT, M. D., D. D. S.,

EDITOR.

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Table of Contents—September.

ORIGINAL COMMUNICATIONS:

Contributions to the History of Development of the Teeth. Carl Heitzmann and C. F. W. Bodecker 453
Recent Theories of the Formation of Pus, Considered with Reference to Dental Operations. G. V. Black 462

REPORTS OF SOCIETY MEETINGS:

American Dental Association 480
National Association of Dental Examiners 487
Connecticut Valley Dental Society 492

EDITORIAL:

Concerning Contests 496
The Medical Congress 498
That Two Hundred Dollar Prize 499
The Meeting of the A. D. A 500
Pus Formation 501
It Can Wait 501
In Extenuation 501
To Junior Dentists 501

CURRENT NEWS AND OPINION 502

Index to Advertisements.

Horsford's Acid Phosphate ..... Cover Page 2
Charles H. Phillips Chem. Co ..... " 2
Underwood Spring Water ..... " 3
R. S. Williams ..... " 4
Listerine ..... Adv. Page 1
Dr. Robert S. Ivy ..... " 2
Announcement ..... " 2
Detroit and Cleveland Nav. Co. ..... " 2
The Medical Register ..... " 2
Seabury & Johnson ..... " 3
Claudius Ash & Sons ..... " 4 & 5
Acme Gold Foil ..... " 6
American Dental Manuf. Co ..... " 7
Murdock's Liquid Food Co ..... " 8
Edward Rowan & Co ..... " 9
C. A. Timme & Co ..... " 10 & 11
Hardman's Amalgams ..... " 12
Dr. Freeman's Disk Cutters ..... " 12
E. Kearsing ..... " 13
Lawrence's Amalgam ..... " 13
Wilmington Dental Mf'g Co ..... " 14
Gasoline Furnace ..... " 15
Daly Gold Lining Dental Co ..... Adv. Page 16
Dr. Brown's Univ. Screw Clamp ..... " 17
S. S. White Dental Manuf'g Co. ..... " 18–23
I. W. Lyon ..... " 24 & 25
Akron Dental Rubber ..... " 26
Parson's Eureka Alloy ..... " 27
Florence Mfg. Co ..... " 27
J. H. Smith's Cements ..... " 28
To Inventors ..... " 28
Parke, Davis & Co ..... " 29
A. J. Nickolds ..... " 29
Vulcanizable Gold ..... " 30
State University of Iowa ..... " 31
Ohio College of Dental Surgery ..... " 32
Penn. College of Dental Surgery ..... " 32
Minnesota Hospital College ..... " 33
New York College of Dentistry ..... " 34
Philadelphia Dental College ..... " 35
Chicago College of Dent. Surg'y ..... " 36 & 37
Dental Review ..... " 38
The Imperial Alloy ..... " 38

The Independent Practitioner—Vol. VIII.

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THE

Independent Practitioner.

VOL. VIII. SEPTEMBER, 1887. NO. 9.

NOTE.—No paper published or to be published in another journal will be accepted for this department. All papers must be in the hands of the Editor before the first day of the month preceding that in which they are expected to appear. Extra copies will be furnished to each contributor of an accepted original article, and reprints, in pamphlet form, may be had at the cost of the paper, press-work and binding, if ordered when the manuscript is forwarded. The Editor and Publishers are not responsible for the opinions expressed by contributors. The journal is issued promptly on the first day of each month.

Original Communications.

HISTORY OF THE DEVELOPMENT OF THE TEETH.

BY CARL HEITZMANN, M. D., AND C. F. W. BÖDECKER, D. D. S., M. D. S.

CONTINUED FROM PAGE 402.

IV. THE EPITHELIAL CORD OF THE ENAMEL ORGAN.

The history of the development of the tissues of the teeth is not intelligible on the basis established by the researches of Remak. According to this observer, the epiblast and the hypoblast are epithelial formations, and give rise to epithelial tissues and their derivations only. The mesoblast is connective tissue, including the muscles, the blood-vessels and the lymph-vessels. Early investigators in embryology were embarrassed in attempting to explain the origin and formation of the central nervous system (brain and spinal cord), which unquestionably has its origin in the epiblast, although in full development it contains a large amount of connective tissue, and blood-vessels, which are intermixed with nerve substance proper, such as the gray substance, the ganglionic corpuscles, and the axis cylinders. For that portion of the epiblast which

gives rise to the nerve-centers, some authors have proposed the name "neuro-epithelium." This would imply that from an original epithelial structure, tissues may arise which have no resemblance to and do not contain epithelia, except in the ventricular lining of the brain and the central canal of the spinal cord. It is admitted, therefore, that a certain portion of the epithelium of the embryo contains protoplasm which, in turn, becomes gray substance, forms the ganglionic corpuscles, and axis cylinders as well as the investment of the latter—the myeline or nerve fat—and the perineurium or neuroglia, which all admit is a delicate fibrous connective tissue.

The history of the development of the enamel likewise furnishes striking proofs of the fact that the theory of exclusiveness, so far as the epiblast is concerned, is not tenable. The writers have demonstrated that the original epithelial cord of the enamel organ serves for carrying a certain amount of building material into the depth of the connective tissue. This material, however, loses its epithelial nature as soon as it gives rise to the enamel organ proper, which is myxomatous connective tissue. The fact was established that the tissue termed enamel is epithelial in its origin only, and changes its character shortly before its appearance. We must admit that enamel will not be formed unless upon an epithelial basis, the epithelium in this instance being the conveyor of the protoplasm from which enamel originates. But to assert that enamel is an epithelial structure throughout would be as erroneous as to call the brain and the spinal cord epithelial structures.

From an organo-genetic point of view, we may say that the outer senses of the animal organism, serving for perceptions from the outer world, are formations of the outer investment of the animal, its epiblast. The brain, being the highest perfection of sensual perception, retains its origin from the epiblast. The same may be said of the teeth, which, in some lower order of amphibious organisms, such as chelonia, are nothing but horny ledges, or a thickening of the epithelium. Even at the height of development they retain their genesis from the epiblast, and are, at least as far as the enamal is concerned, derivations from it.

Let us now consider the direction taken by the epithelial cord of the enamel organ into the depth of the connective tissue, up to the time when the enamel organ is ready for the formation of the enamel.

The first trace of the future tooth in the human embryo is visible about the sixth week of intra-uterine life, when the epithelium of the oral cavity is as yet little developed. Here we notice a furrow, which is situated close behind the lip, and is succeeded by an elevation of medullary tissue. (See Fig. 21.)

FIG. 21. *Human embryo six weeks old. Frontal section.*

T. Tongue.
L. Lip.
B. Base of oral cavity.
F. Furrow, which is in the transvere section, funnel shaped.
Magnified 25 diam.

After this period follows the formation of an epithelial peg, appearing, not at the bottom of the primitive dental furrow, but at some distance from the latter. This peg appears as a reduplication of the epithelial layer covering the elevation behind the furrow. (See Fig. 22.)

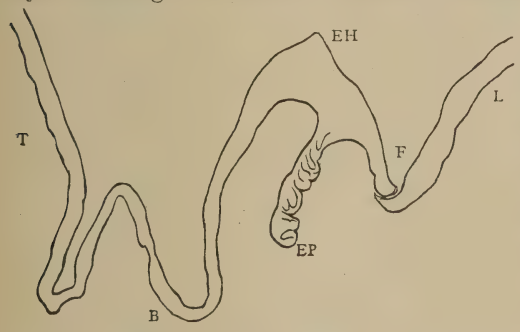

FIG. 22. *Base of oral cavity of human embryo two months old. Frontal section.*

T. Tongue.
L. Lip.
B. Base of oral cavity.
F. Furrow.
EH. Epithelial hill.
EP. Epithelial peg.
Magnified 25 diam.

Shortly afterward, the epithelial hill has gained in height considerably, and from the point which connects the hill with the rest of the oral epithelium, the original peg has elongated into an epithelial cord. A striking feature of this cord is that from its periphery arise blunt or slightly pointed offshoots, while at the same time its distal end is noticeably broadened, the epithelia being arranged in radiating tracts throughout, but most markedly in the club-shaped enlargement of the distal end. (See Fig. 23.)

In the third month of embryonal life the epithelial hill still remains a prominent formation. From the point of its junction

arises the epithelial cord, which varies, to some extent, both in width and in its course. Sometimes the cord runs nearly parallel with the base of the oral cavity, becoming devious toward its club-shaped distal end. Its periphery is slightly fluted, and from its lower contour arise scanty but strongly marked epithelial offshoots, the significance of which is not perfectly plain. We may assume that a large secondary offshoot forms the epithelial cord of a future permanent tooth, but as to the significance of the short secondary offshoots we only can suggest that the epithelium primarily producing the cord at first assumed a direction which afterward was changed.

FIG. 23. *Base of oral cavity of human embryo two months and a half old. Frontal section.*

EH. Epithelial hill.
O. Epithelial lining of base of oral cavity.
F. Furrow.
EC. Epithelial cord of enamel organ.
EO. Club-shaped enlargement of the epithelial cord, the future enamel organ.

Magnified 25 diam.

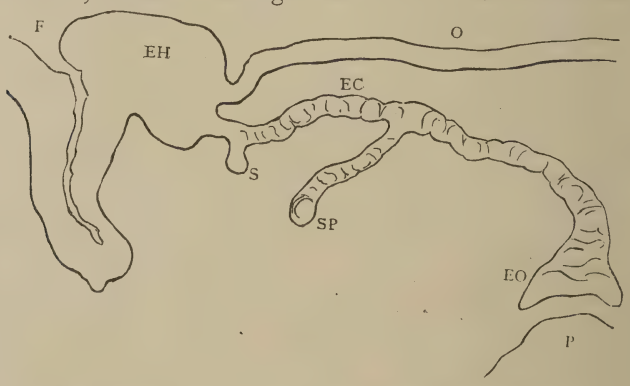

FIG. 24. *Base of oral cavity of a human embryo three months old.*

EH. Epithelial hill.
F. Furrow, sharply marked and lined by a heavy layer of flat epithelium.
O. Base of oral cavity.
EC. Epithelial cord.
EO. Club-shaped end of the epithelial cord, the future enamel organ.
S. Secondary offshoot.
SP. Secondary offshoot, possibly a germ of the permanent tooth.
P. Papilla.

Magnified 25 diam.

This much is certain, that such short secondary offshoots perish and disappear in the course of further development. It would certainly be a bold hypothesis to consider all such short secondary offshoots germs of supernumerary teeth, or of third dentitions. They are too common as compared with the rare cases in which supernumerary teeth are found. At this stage of development the first trace of the papilla (the future dentine) is noticeable. (See Fig. 24.)

Sometimes the epithelial cord is broad, exhibiting comparatively few blunt secondary offshoots. Its course is more or less vertical, into the depth of the connective tissue of the jaw. The epithelium within the cord is arrangedinto groups separated by trabeculæ somewhat resembling those of true myxomatous connective tissue. Theclub-shaped end of such a cord at this period shows a slight separation of the columnar epithelium into an outer and an inner layer, whereas the center of the club-shaped enlargement is occupied by medullary corpuscles, which as yet do not exhibit the characters of a myxomatous reticulum. Unquestionably, this medullary tissue has arisen from epithelia, which originally filled the club-shaped end of the cord, and it is this medullary tissue from which, soon afterward, the myxomatous reticulum of the enamel organ proper originates. (See Fig. 25.)

FIG. 25. *Floor of oral cavity of a human embryo three months old.*

EH. Epithelial hill.
F Furrow.
O. Oral epithelium.
EC. Epithelial cord.
S. Short secondary offshoot.
EO. Medullary tissue of enamel organ.
P. Papilla, detached.
Magnified 25 diam.

We found an epithelial cord of a three months embryo presenting points of interest, since it showed evidences of the germ of a temporary molar. A short offshoot arose at the place of origin of

the epithelial cord, while the latter made a few shallow convolutions and then abruptly turned downward in a direction almost at right angles to its former course.

At the place of the turn a broad epithelial layer was perceptible, showing the rather thin epithelial tracts before alluded to, and in part indistinctly bordered toward the adjacent medullary tissue. The club-shaped end of the epithelial cord was divided into two segments by an intervening deep fissure. The broadest segment again showed blunt protuberances, to which corresponded shallow hills of the subjacent papilla. The club admitted of an indistinct differentiation into an external and internal epithelium, whereas its center exhibited a few faint tracts of epithelia, and a large amount of medullary tissue, which as yet had nowhere entered into the formation of a myxomatous reticulum. (See Fig. 26.)

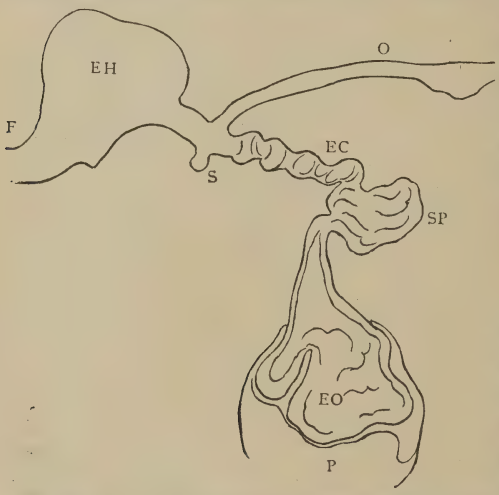

FIG. 26. *Base of oral cavity of a human embryo three months old.*

EH. Epithelial hill.
F. Furrow.
O. Oral epithelium.
EC. Epithelial cord of enamel organ.
S. Short secondary offshoot.
SP. Broad secondary offshoot, possibly the germ of a permanent molar.
EO. Club of the epithelial cord filled with medullary tissue (the future enamel organ.)
P. Papilla.

Magnified 25 diam.

When the embryo has reached about the fourteenth week, the epithelial cord assumes considerable interest, on account of the appearance of two distinct layers at its distal end, the internal and the external epithelium, between which the myxomatous enamel organ makes its appearance. The papilla, at this point of development, has a distinct neck, being of a mushroom shape. At its distal periphery it is bordered by a thin layer of fibrous connective tissue extending upward along the external epithelium, to a certain height, and producing what has been termed the follicle, or tooth sack. In one of our specimens the epithelial cord emanates with a broad

base from the epithelial hill, having at this point several short and blunt offshoots directed downward. Its general course is almost parallel to the floor of the mouth. The enamel organ originates from its distal end in an abrupt rectangular manner, with a somewhat narrow neck. The external epithelium extends into a solid peg, with a slight sigmoidal curvature, obviously the germ of the future permanent tooth. (See Fig. 27.)

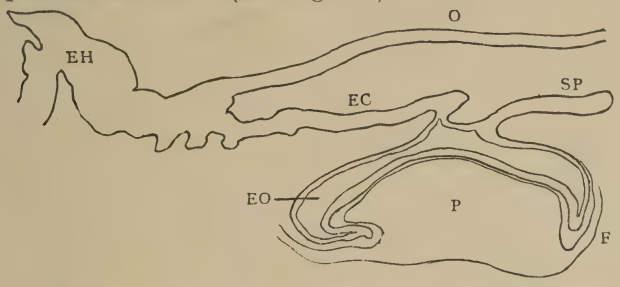

Fig. 27. *Base of oral cavity of human embryo three months and a half old.*

EH. Epithelial hill.
O. Oral epithelium.
EC. Epithelial cord.
SP. Secondary offshoot of a permanent tooth, arising from the external epithelium of the enamel organ.
EO. Enamel organ of a distinctly myxomatous character.
P. Papilla.
F. Follicle.

Magnified 25 diam.

In another specimen of the same period the epithelial cord arises from the base of the epithelial hill, with a narrow neck, in immediate connection with a solid epithelial peg, running a downward vertical course, with a slight sigmoidal curvature. The epithelial cord itself shows blunt offshoots upward as well as downward, the former being characterized by a distinct concentric arrangement of their epithelia. The general course of the epithelial cord is slightly downward. Its cup-shaped distal end is marked by three prolongations, the concavities of which correspond to two myrtle-leaf shaped papillæ. Obviously, this is the germ of a future temporary molar. No trace of a corresponding permanent tooth was visible at the distal end of the epithelial cord. The external epithelium is very broad, and visible only along the broad cup. The enamel organ is narrow, but possessing a pronounced myxomatous structure. (See Fig. 28.)

The fourth month of embryonal life differs from the previous stage only as the myxomatous enamel organ gains considerably in

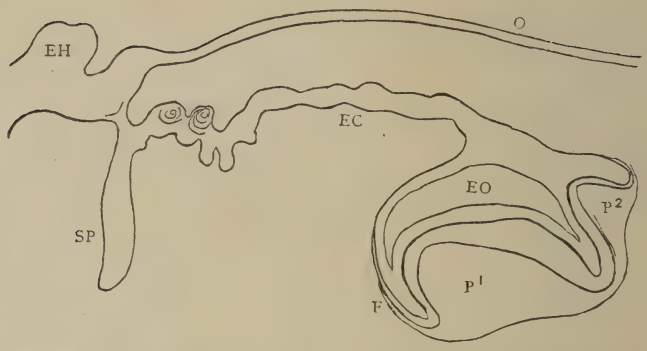

FIG. 28. *Floor of oral cavity of a human embryo three months and a half old.*

EH. Epithelial hill.
O. Oral epithelium.
EC. Epithelial cord of enamel organ.
SP. Secondary offshoot, possibly the germ of the permanent tooth.
EO. Enamel organ.
P^1 and P^2. Double papilla.
F. Follicle.

Magnified 25 diam.

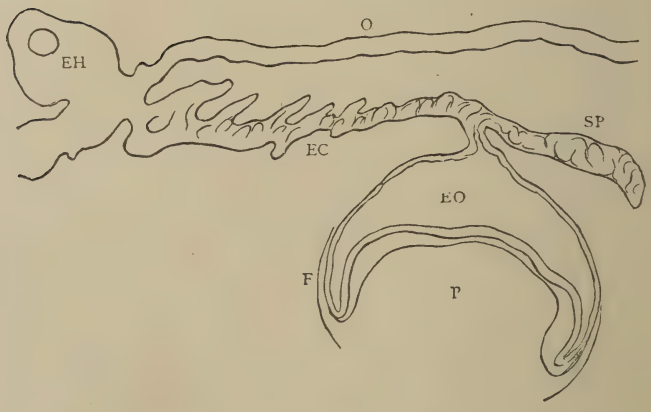

FIG. 29. *Floor of oral cavity of human embryo four months old.*

EH. Epithelial hill.
O. Oral epithelium.
EC Epithelial cord with numerous offshoots.
SP. Secondary peg of permanent tooth.
EO. Myxomatous enamel organ.
P. Papilla.
F. Follicle.

Magnified 25 diam.

volume, with a simultaneously marked differentiation into its two boundary layers, the external and the internal epithelium. The papilla, at this stage, likewise, has gained in bulk, and its enveloping layer of fibrous connective tissue extends further up along the convexity of the cup of the enamel organ. In one of the specimens, the epithelial hill is extremely marked, and contains a central vacuole, possibly the first step toward its destruction, since shortly afterward no trace of it is found. The epithelial cord originates with a narrow neck, and has numerous oblique secondary offshoots, mainly at its upper periphery. The arrangement of the epithelia into tracts is marked along the epithelial cord, not only of the temporary but also of the permanent tooth. (See Fig. 29.)

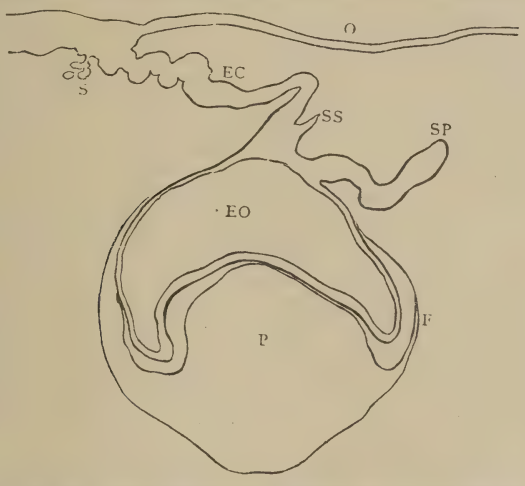

Fig. 30. *Floor of oral cavity of human embryo four months old.*

O. Oral epithelium.
EC. Epithelial cord.
S. Short pediculated offshoot.
SS. Secondary offshoot, lancet-shaped.
SP. Secondary peg of permanent tooth.
EO. Enamel organ.
P. Papilla.
F. Follicle.

Magnified 25 diam.

In another specimen of the same age, the epithelial hill is absent. The cord has but a limited number of offshoots, some of which are pediculated, and some have the shape of a lancet. The peg of the permanent tooth is conspicuous by its devious course. (See Fig. 30.)

With the age of four months and a half, the development of the enamel organ has still further proceeded, its myxomatous tissue is plainly marked, and the papilla has correspondingly gained in bulk. The specimen illustrated is noteworthy for its short vertical epithelial cord, which is directly in connection with the lining epithelium of the oral cavity. The secondary offshoots are but short, and no trace of a peg for the permanent tooth is visible in this section. The cup of the enamel organ is lobulated, obviously belonging to a future molar. (See Fig. 31.)

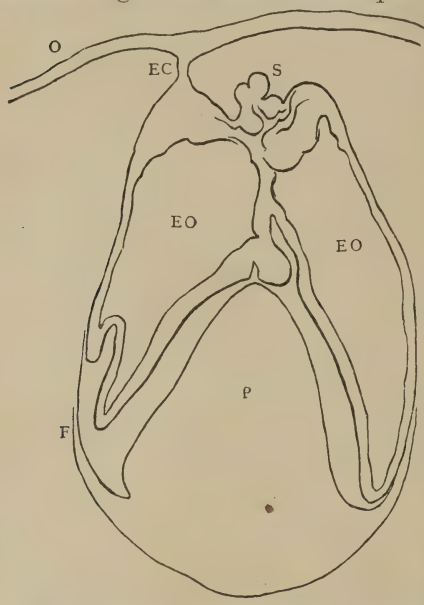

FIG. 31. *Enamel organ and papilla of human embryo four months and a half old.*

O. Oral epithelium.
EC. Short epithelial cord.
S. Secondary offshoot.
EO. Enamel organ.
P. Papilla.
F. Follicle.

Magnified 25 diam.

The further changes of the enamel organ, beginning with the fifth month of fœtal life, have been illustrated and described in our previous article on the history and development of the enamel. (INDEPENDENT PRACTITIONER of 1887, page 225.)

(TO BE CONTINUED.)

RECENT THEORIES OF THE FORMATION OF PUS, CONSIDERED WITH REFERENCE TO DENTAL OPERATIONS.

READ BEFORE THE CONNECTICUT VALLEY DENTAL SOCIETY AT MONTREAL, P. Q., JULY 20TH, 1887.

BY G. V. BLACK, M. D., D. D. S.

The ancient and time-honored theory that the formation of pus is an act of the tissues themselves, or is a mechanical effect simply following molecular death, has, within the last few years, been

questioned by the strictest experimental inquiry, and apparently has been disproven. The surgeon of the past has seen the formation of pus occur in open wounds with such promptness and regularity, that it came to be regarded as a necessary part of the series of the phenomena taking place during the processes of repair. That this formation of pus was an act of inflamed tissue, was unquestionably the opinion of the medical world down to a very recent date, and is, perhaps, yet held by the masses of the medical profession. The fluid portions of pus were regarded as liquefied portions of tissue and escaped serum, in which were commingled large numbers of so-called pus corpuscles. These latter were very properly held by almost all observers to be nothing more than ameboid cells, which had been so unfavorably placed that they had died, and were thrown off with the fluids, or had wandered out from the tissues and were carried away with the secretions. In this view of the case, pus came to be regarded generally as a normal secretion, and was looked for as an essential result in any considerable wound which involved the integrity of superficial parts.

While this was looked for as an essential occurrence, surgeons had learned to regard the characters of pus with interest in each particular case, and when this product was thick, creamy and inodorous, it was regarded as a good omen. This was called laudable pus, healthy pus, etc., and so long as this character was maintained the wound was regarded as in good condition. If, however, the pus departed from these qualities, it was known to portend evil for the patient. Therefore, different qualities of pus came to be recognized.

It had long been observed, however, that wounds in which the integrity of the skin was not disturbed, very generally healed without suppuration. A bone might be broken, and even comminuted, and if not complicated by an opening upon the surface, the wound would generally heal without the formation of pus. The case might present as much inflammatory movement as the open wound, the extent of injury might be great, and the case present a grave aspect, but yet it would very generally run through the course of repair without the formation of pus. These facts gave rise to much inquiry as to why this clinical difference, and the conjecture that it was in some way brought about by exposure to the air, was entertained.

These theories received the first severe discredit by the brilliant experiments of Joseph Lister, of Glasgow, Scotland. This surgeon, by what became known later as the Lister method, a method which had for its object the exclusions of micro-organisms from wounds, demonstrated that open wounds might be so treated that the process of repair would be essentially the same as that of internal injuries. He arrived at the idea that the formation of pus was in some way influenced by the life and growth of micro-organisms, but how, seems not to have been very clearly made out. However, the ancient idea that the formation of pus was a vital act, was not questioned by him. He seemed rather to look upon the micro-organisms as having the effect of farther depressing the vital energies of tissues already inflamed, or of increasing the inflammatory movement already present in such a way as to increase the suppuration, or to produce it in cases in which it would not have occurred without their presence. But down to the time of the World's Medical Congress, which met at London, in 1881, he certainly had no idea of questioning the general opinion that the formation of pus was a vital act of inflamed tissue. At that time Prof. Volkman, of Halle, and some others, held the opinion that without micro-organisms there was no pus formation. He says; "In the worst constitutions, and with the most disordered state of health, no suppuration takes place if septic infection is prevented." (London Congress, Vol. II, p. 362.) At that time this was regarded by Mr. Lister and others as a very extreme view.

In the consideration of this question there are certain facts that are so firmly established by direct observation that they must be regarded as fundamental, and no theory can be entertained that will not include them. What may be termed the anatomical or physical process of the formation of pus has been so well observed in the past, and agreed upon by so large a group of observers, that it must be regarded as definitely settled, and beyond the possibility of dispute. We may properly look for factors in this process heretofore overlooked, and seek different explanations of the phenomena observed, but those phenomena that have heretofore been prominently apparent are, and will ever remain, prominent phenomena of this process. Briefly, these are inflammation with its usual phenomena of heat, redness, pain, and swelling, as stated from the more superficial observation. But from the standpoint of

histological inquiry, they consist essentially of certain local disturbances of the circulation, the formation within the tissues, or upon the surfaces of membranes, of a certain plastic or coagulable exudate, the gathering of white blood corpuscles, wandering cells, ameboid cells or leucocytes to the spot, and certain disturbances of the fixed cells in the focus of the inflammatory movement. These ameboid cells are properly undeveloped connective tissue cells, or cells derived from rejuvenated connective tissue, and one of their functions in the economy of nature is the repair of injuries. In this process these cells are developed into the new tissue, or tissue of repair. The plastic exudate is essential. All tissue of a primary character is first developed in a homogenous matrix. This is true of the development of the tissues of the fœtus, and is equally true of the development of tissues of repair. The plastic exudate thrown out in the process of inflammation forms the matrix in which the ameboid cells develop. These cells are always found imbedded within this exudate, and it is essential to their growth or development into tissue. In the formation of pus, this plastic exudate is observed to liquefy. The ameboid cells are found floating in the liquid mass, and are then known as pus corpuscles. Indeed, the cells under these circumstances are no longer capable of development. The matrix in which they were lodged, and in which, normally, their development should proceed, has become liquid, and is so changed in its chemical qualities that it fails to support them, and they die.

Furthermore, this plastic exudate, as I have said, is also thrown out among the fixed cells, the older elements of the tissue in which an inflammation occurs. Liquefaction may and does occur in this position also. Here we find that the ameboid cells mingle among the fixed cells of the part, and all become imbedded in a matrix of plastic exudate. In the event of suppuration the plastic exudate becomes liquid, and the tissue already divided by its presence dies, and is in part rendered fluid and floats away with the liquid material as shreds and cells, together with the ameboid cells. All of these combined, form what we know as pus.

In open wounds this process is observed to begin superficially, or upon the exposed surface. In the development of phlegmonous abscesses, it may have its beginning in the midst of the tissues. In the latter case, after its establishment, the further development of

pus proceeds from the walls of the abscess, as in the open wound it proceeds from the surface. Ameboid cells that come to the surface tend to pile up in the form of living granulations, but more or less of them float away in the liquefying exudate that should form their matrix. In this way the formation of the matrix filled with fresh ameboid cells, which tend to develop into granulations, is constantly proceeding. And the liquefaction of this exudate, carrying with it the ameboid cells in the form of pus, is also constantly proceeding. If the former exceed the latter, the healing of the wound is being accomplished; but if the latter exceed the former, destruction of tissue and the widening of the breach of continuity is the result.

This much has been observed by histologists and pathologists for years past, and may be regarded as so firmly established that our views upon these points are not likely to be essentially changed by future observations.

The important questions which present themselves now are two, around which all others arrange themselves:

1st. What visible phenomena are found to be present in suppuration which had not formerly been observed and considered?

2nd. What is the cause of the liquefaction of the plastic exudate and the death of the ameboid cells?

The answer to the first of these questions must rest purely upon direct observation, and can be settled in no other than the experimental way. For many years past microbes have been observed in pus, but the idea that they were in anywise essential to pus formation was not seriously entertained until a comparatively recent date, and had not been considered. Many phenomena may be presented during the occurrence of such changes as that we are considering, that are purely accidental and not necessary to the process. Therefore, to establish that a certain accompanying phenomenon is really essential, it is necessary to show that it is always present, and that the process cannot proceed without it.

Observations in regard to the connection of microbes with the formation of pus have now been in progress for several years, and by the most astute observers of the world. These observations may be divided into two classes. First, examinations of pus with a view of determining whether or not microbes are uniformly present. Second, experimental production of pus under conditions intended to illustrate the possible connection of microbes with the process.

The finding of microbes in pus dates back many years. For a long time nothing was thought of the matter, for it was considered to be purely accidental and of no consequence. Until comparatively recent times, it was supposed that only the pus of open wounds was contaminated with these organisms, but as the means of search for these approached their present stage of perfection, many individuals asserted that microbes were present in all pus, whether it was from internal and previously unopened abscesses or not.

Formerly, before the methods of examination had reached the perfection they have acquired within the last few years, observers had often failed to find micro-organisms in pus from previously unopened abscesses, but recently this search has been more successful. I have myself examined the pus from a large number of abscesses, especially alveolar abscesses, and for several years past have found cocci in the pus in all cases. Not only this, but I have cultivated these organisms from abscesses, in broth, on gelatine, and upon agar-agar, and noted their characters. Dr. Earnst, of Boston, has also made a large number of cultivations from various classes of abscesses, with similar results. This class of experiments is but a repetition of observations by various observers in different parts of the world, separated by thousands of miles, and all give substantially the same testimony. All pus, no matter where formed, whether in closed abscesses deep within the tissues, or upon the surface, contains living micro-organisms, that will grow when placed in suitable cultivating media.

But the more decidedly practical plan of study, and one that appeals more strongly to the mind, consists in the effort to produce suppuration in experimental wounds from which micro-organisms are rigorously excluded. This class of experiment has been undertaken by a considerable number of persons. In the first of these the precautions were not successful, and micro-organisms gained entrance, vitiating the results and giving the impression that pus was produced under aseptic conditions. A very severe training was found necessary to the successful performance of this class of experiment. But as the plans were improved, success in the exclusion of microbes was attained. The results seem to have proven, that without the presence of microbes no amount of injury or irritation of the tissues will result in suppuration. These experiments have now been repeated by so many persons and varied in so many ways,

and so many irritants have been employed, that the question seems no longer doubtful.

It seems unnecessary that I should now recite all, or any considerable portion, of the experimental evidence that has accumulated in the last few years. This may be found in our literature, and the more important portions have been collected in convenient form for reference by Dr. H. Knapp, of New York, in an article in the *Archives for Ophthalmology*, Vol. 15 (1886), page 24, and another in the *New York Medical Record* of Dec. 25, 1886. I have also cited some of these in an article in the *Dental Review* of March 15, 1887. In addition to these, the work of Dr. Earnst, of Boston, published in the transactions of the American Surgical Association for 1886, page 53, should not be overlooked.

As illustrating the character of this work for the benefit of those who may not have followed the literature, I may recite the plans of a few of these experiments. E. Scheuerlin placed irritants, such as croton oil, and turpentine, in very thin glass capsules or tubes, which were sealed hermetically and sterilized. These were placed under the skin of healthy animals with aseptic precautions, and allowed to remain until the wound by which they were introduced had perfectly healed. The tubes or capsules were then broken, to bring the irritant in contact with the tissues. By this plan of experiment a hard swelling was produced, but no pus was formed, except in one case, and in this the experimenter concludes that the wound had not perfectly healed. Cocci were found in its track, and in the pus that formed in the focus of the inflammation. This form of experimentation has been varied by a number of individuals, with similar results. Dr. Ruys and Dr. Knapp have made several series of experiments also of a similar nature, except that they have injected irritants into the anterior chamber of the eye (in rabbits), where both the irritant and the results of the irritation could be seen, and have satisfied themselves that it was impossible to produce suppuration in the absence of micro-organisms. I have myself made some experiments, by passing broaches rendered aseptic by heat through the apex of the roots of teeth, from which I had just removed the pulp under aseptic conditions, into the tissues beyond, and tearing them up as thoroughly as was practicable. Although inflammation was sometimes produced, there was no suppuration.

This accumulation of testimony drives us to the conclusion that micro-organisms are active agents in pus formation. The question as to how these act to produce pus, is the next important factor, and leads to the consideration of the second question, viz.: What is the cause of the liquefaction of the plastic exudate and the death of the ameboid cells ?

This question had been discussed before the discovery that micro-organisms were in anywise related to the suppurative process, and the general idea of pathologists may be expressed in the phrases, "Over-stimulation of the part," "Intensity of the inflammatory process," Failure of nutrition," "Death of the cells from abnormal exposure," etc. On this point there was no very satisfactory opinion, the general idea being that those cells, unfavorably placed, either by the intensity of the inflammatory movement, by the partial cutting off of the supply of aerated blood, or by a generally impoverished condition of the system, died, and that the liquefaction of the matrix or exudate was the result of this death of the cells, or from the same cause. All of these suppositions, except the last, are probably very nearly correct, and should still have due consideration, but further study of the subject seems to show that the liquefaction of the exudate is dependent upon other agencies, and is the primary lesion looking to the formation of pus. It may be stated as an axiomatic principle, that no portion of the animal body is capable of self-destruction. The changes that take place are under the influence of life, and life is not self-destroying. One part of the body may destroy another, as is seen in the solution or absorption of the roots of the temporary teeth by the odontoclasts, or the absorption of bone by the osteoclasts, but the roots of these teeth or the bone have no part, except a passive one, in the process. One cell may destroy another in the same way, or one group may destroy another group. But in no case can a cell or any individual component of the body destroy itself. Therefore, the liquefaction of the exudate cannot be regarded as an act of the exudate, nor can the ameboid cells destroy themselves.

Any component of the body may die from want of nutritive support, or may be destroyed by traumatism ; but in this event the material elements, the chemical forms, remain. These dead forms have no power in themselves to change. Long ago it was supposed, as was taught by Liebig, that organic matter left to itself fell into

a state of molecular motion, in consequence of which its chemical form was changed. We have since learned, however, that all such transformations of matter are the results of life-force exhibited in certain micro-organisms, and that matter in itself, and by the powers inherent in it as matter, has no power to change, except as one element or compound is presented to another, and that in each instance the action of chemical affinity thus aroused tends to self-satisfaction and permanent quiet, until again disturbed by forces extraneous to itself. Now tissue that has died is left to itself; that power which controlled the presentation of element to element for the maintenance of its changes has ceased to act, and its chemical affinities are satisfied. Life causes chemical combinations that are peculiar to its purposes, by presenting element to element under peculiar relations or conditions. But there is no change of the chemical affinities of the elements. Dead material is, therefore, incapable of self-movement, or of change of chemical form. This is continually witnessed in various parts of the body. Blood clots resulting from the ligation of arteries, emboli, infarctions, in which considerable areas of tissue are destroyed, etc., rarely suppurate. In these cases it is seen that a tissue that simply loses vitality,—dies,—does not tend to change its chemical form except as it is acted upon by the living tissues about it, and, being shut off from the approach of microbes, does not take on degenerative changes. The cause of suppuration, when it does occur in these, will be explained later. Were it otherwise, with the forces inherent in matter as such, certainly the theory of spontaneous generation might be maintained.

That the liquefaction of the plastic exudate for the formation of pus is not an effect of inflamed tissue is, in the first instance, a matter for experimental inquiry rather than for theoretic consideration. This inquiry has been had as related, and this theoretic consideration is properly the result of that inquiry. In the years that have passed since the discovery of the yeast plant by Schwan, in 1838, many succeeding discoveries have combined to show that all of those chemical changes that had been observed to occur in the various forms of fermentation and putrefaction, are results of the life and growth of micro-organisms, and in no case has matter been found capable of spontaneous change. Now it is found by the strictest experiment that those changes which result in the forma-

tion of pus are not due to the vital principle residing in the tissues of the animal, nor to physical agencies, but to the vital principle as exhibited in micro-organisms. It is, in fact, a species of fermentation of the plastic exudate thrown out in the act of inflammation. Strict experimental inquiry shows that this exudate is rendered fluid by a fermentative process, and is so changed in its chemical qualities that it no longer supports the ameboid cells. These cells then die, and in some of the forms of suppuration many of these are broken up and liquefied also. It had been supposed that contact with dead tissues was sufficient to destroy the vitality of the ameboid cells, but it has been found that they may wander into the dead tissues of infarcted regions, tissues destroyed by traumatism, or dead tissues placed in the body experimentally, and retain their vitality.

This, then, is the explanation of the suppurative process, and is in strict agreement with other forms of fermentation and decomposition: *Liquefaction of the plastic exudate by the operation of microbes, death of ameboid cells from the changed chemical character of their matrix*—these combined, form pus. These processes produce irritation, which extends the inflammatory movement. Hence the suppuration and destruction of tissue.

This power of micro-organisms to change gelatinous material to the liquid form is well illustrated by artificial cultivations. A considerable number of varieties, when grown in ordinary sterilized gelatine in test tubes, produce liquefaction quite rapidly, at ordinary summer temperature. One variety that I have recently been cultivating, a film-forming, or sheet coccus, will, when planted upon the surface of gelatine in a test tube, liquefy it progressively from top to bottom at the rate of about one-eighth inch per day, at a temperature of eighty degrees Fahr., and much more rapidly as the temperature is raised. Many others are found that liquefy gelatine similarly, but with less rapidity. It is this power of liquefying substances upon which they grow that gives certain micro-organisms the power to produce pus, rather than any quality of producing irritation or inflammation.* Most of them, indeed, produce irritation, also, and some of them do so in a very marked

* Note.—An organism capable of liquefying the plastic exudate, and thus producing pus, does not necessarily liquefy ordinary gelatine; neither does every organism that may liquefy gelatine in our test tubes act as a pus producer.

degree, especially the ordinary *streptococcus pyogenes*, so generally found in phlegmonous abscesses. In this respect there is, according to my own observation, great differences among the different varieties of pus-producing microbes. This has been so marked in my experience, that I am able, generally, to say in advance that certain microbes are absent or present in certain qualities of abscesses. For instance, I have never found the *streptococcus pyogenes* in a white, creamy pus, in an abscess that had arisen with little pain, or in a wound that had not taken on a decidedly inflammatory condition, etc. However, it is not now the intention to discuss the character of individual species, or varieties, of microbes that are active agents in pus formation. There are now about twelve varieties recognized, that are capable of producing pus, the greater part of which I have myself observed and cultivated. It is probable that additions will be made to this number in the near future.

To the dental profession, it is a fact of great interest that most of these fungi grow fairly well in the human saliva, and are found in it very frequently. I have recently made a considerable number of plate cultivations from the saliva of different individuals, for the purpose of determining how frequently these fungi might be found in the mouths of healthy persons. The number of cultivations have not been sufficient, however, to be satisfactory. In the examination of ten persons, I found the *staphlococcus pyogenes aureus* seven times, as determined by its form of growth in broth, upon gelatine and upon agar-agar, *staphlococcus pyogenes albus* four times, and *streptococcus pyogenes* three times. These trials were made by simply scraping the tongue, or some portion of the mucous membrane of the mouth, once with a platinum wire previously brought to a glow. These three forms are the most wide-spread and prevalent of the pyogenic fungi, and my supposition is that they would be found in a vast majority of healthy mouths if the search was carefully and persistently made. In a few cases that I have examined repeatedly, I have found the staphlococci everywhere in the mouth. In other cases I have been unable to find these at all, after repeated efforts.

The *streptococcus pyogenes* is so similar to the ordinary streptococci of the mouth, that it cannot be distinguished by microscopic examination, except by one who has had much observation of these

species together and separate ; but its colony and its surface growth on gelatine afford a means of distinguishing them, after its manner of growth has once been learned.

Other pyogenic fungi than these three, I have found in the mouth only occasionally. I have also found them much less frequently in abscesses, and in pus from wounds, and must suppose that they are much less frequent in the air. It should be understood that any microbes in the air we breathe which are capable of growing in the saliva (and very large numbers grow in it), are likely to be found there from time to time. Besides these, there are certain species that are peculiar to the saliva, and are found in the mouth of almost every individual. These latter are comparatively few in number, and soon become familiar to one who spends much time in making cultivations from the saliva or mucous membranes of the mouth.

As dentists, we must consider that these pyogenic fungi are generally present in the mouth, and that every wound that we inflict is in danger of becoming infected by them. Under these circumstances, a study of the consequences of such infection becomes important to us and our patients. In the first place, the tissues upon which we operate, except it be the hard tissues of the teeth themselves, are the best supplied with blood and nerves of any in the body, and are on that account proportionately more resistant to evil influences of all kinds. This power of resistance applies to the encroachments of microbes, as effectively as to evils resulting from any other form of injury. Very few of the pyogenic fungi have, ordinarily, any considerable power to produce inflammatory conditions, and they have practically no power of mischief in any part of the body in the absence of inflammation, and necessarily the least about the mouth and face, where the resistance is greatest. When inflammation gives them the opportunity, some of the varieties cause a very rapid liquefaction of lymph deposits in an inflammatory focus, with increase of the inflammatory movement, until the growing fungi are surrounded by an almost solid wall of living ameboid cells—the so-called pyogenic membrane of older writers. This increase of the *living element* in the wall of the abscess has the effect of limiting the growth of the fungi, and in the end they are expelled, followed by the healing of the abscess.

Another reason for the abridgment of the damage is found in the weakening of the fungi from the accumulation of their own

waste products. If we plant pyogenic fungi in peptonized beef broth, they will make a more or less vigorous growth, but after a time they sink to the bottom of the vessel, and all growth ceases. In case of the acid-forming fungi, we have learned by direct experiment that this cessation of growth is not on account of the exhaustion of the pabulum, but on account of the accumulation of the waste product, the acid, and that if this is neutralized by the addition of a proper amount of an alkaline base, forming a salt, answering the end of elimination of this product, growth will again proceed. This accumulation of the waste products of the pyogenic fungi occurs in the pus of abscesses, rendering it unfit for the continued growth of the fungi which produced it. The operations of the fungus thus become limited to the fresh exudates thrown in from the abscess wall. This is in turn limited as the walls become more solidly packed with ameboid cells—living matter—which is not so readily attacked.

This seems to be the explanation of the sharp rise and subsidence of suppuration, which may be said to be the common course of events when a focus of inflammation, arising from direct traumatism or other cause, is infected with pyogenic fungi alone. This is varied by two factors: first, the vital powers of the tissues; second, the activity or vital energy of the fungus. According as the one or the other is greater or less, will the course of suppuration be prolonged or abridged. If, however, the focus of inflammation be contaminated also with those species of fungi which produce active inflammatory condition, such as the cocci of erysipelas, or others of similar nature, the injury may be wide-spread and grave. Happily, such is but rarely the case in the class of lesions which we are called upon to treat.

Thus far we have considered open wounds only, or abscesses which may possibly have been infected from the surface. But microbes are found in all pus, whether the locality of its formation has had the opportunity of infection from the surface or not. The question now comes as to the possibility of infection by other channels, or what I shall designate as *indirect infection*. The ablest experimentation, perhaps, on the subject of indirect infection, has been performed by Becker and Krause. It having been observed that pus was occasionally formed in case of simple fracture of the limbs, in which the wound was in a position which rendered direct

infection impossible, and yet that this pus contained the usual cocci, these gentlemen instituted experiments for the purpose of determining whether or not microbes could be conveyed to the spot by the blood streams, a theory that had been widely entertained soon after the introduction of the Lister dressings. This had led to a search of healthy tissues for micro-organisms, and the results satisfied bacteriologists that such tissues did not ordinarily contain them. Still, the question as to whether micro-organisms gaining access to the blood by accident might be so carried, was an open one. In this view of the case, the gentlemen named began their experiments by breaking the limbs of healthy rabbits, and found them to heal readily without the formation of pus. Then, after breaking the bone of the leg, the experiment was varied by injecting into a vein of the ear a fluid containing pus-forming microbes. In this case it was found that suppuration followed regularly, and that the same species of microbes injected appeared in the pus. These experiments, together with others of a like nature, established the fact that microbes may be carried by the blood to a focus of inflammation, and there set up suppuration. Dr. Knapp's experiments also show that pus-forming microbes gain entrance to the blood from wounds that are infected experimentally, for in his experiments with double operations on the eyes of rabbits (see *New York Medical Record* of December 25, 1886), one of which was infected and the other not, he occasionally found the same order of microbes used in the infection had gained access to the eye that was not infected, showing that direct infection into the blood streams is not absolutely necessary to the infection of an internal focus of inflammation. This teaches us that an internal focus of inflammation may become infected from a remote focus of suppuration upon the surface, or upon the mucous membranes. Therefore, it behooves the surgeon to examine his patient critically for minor points of suppuration before performing any important surgical operation.

It also serves to clear up another point. It is very well known that inflammation may arise in internal parts, notably in the joints, and continue for a considerable time without suppuration, but sooner or later suppuration will occur, though no direct infection has been possible. The explanation simply is that microbes have gained access to the blood through some breach, or possibly small

and unimportant focus of suppuration. This class of cases may often be noted in teeth that have lost their pulps. They may go on for months together without suppurating, but finally suppuration occurs.

The time, in the course of a suppuration, at which the blood is most likely to contain microbes, is important. I do not know that there has, as yet, been any direct experimentation upon this point, but it is reasonable to suppose that after the formation of granulations, or the limitation of an abscess by the formation of a so-called pyogenic membrane, the danger of internal infections will be greatly diminished. This is also in harmony with what is known of the occurrence of septicemia and pyemia from wounds.

Such being the teaching of the facts now at our disposal, it becomes important that we inquire into the circumstances and conditions under which infection with these fungi is liable to occur in dental operations, and the circumstances and localities which favor the continued activity of the fungi after infection has occurred. The great prevalence of alveolar abscess, and the frequency with which the dentist is called upon to operate under conditions which favor the infection of the apical space, renders it the best example for the illustration of the principles taught by the facts recited. Since we have learned that we can only have alveolar abscess after infection of the apical space with pus-forming organismst, we have an incentive to the performance of aseptic operations which we never felt before. We have also learned that the enemy is in the saliva of our patients, and the facts at our disposal point to this as not only the most probable source of infection, but as surely the almost universal source—except infected instruments. It therefore follows that this source of infection should always be eliminated before a pulp chamber is opened. To do this it is necessary to put on the rubber-dam, and disinfect the tooth or teeth included, and to disinfect all instruments used in the operation. For this purpose suitable disinfectants should always be on the operating table. It may appear to some that in case a pulp chamber is already open, and infected, this precaution will be of little avail. Not so, for if the canals are already infected the first object will be to thoroughly disinfect them, and to do this the source of infection should first be eliminated. Then, and not until then, should we expect to successfully disinfect the canals. The fact that many root canals have

been successfully disinfected without this precaution, only shows the power of the disinfectants employed. It does not serve to recommend such procedures, since the source of infection has become so thoroughly known. Very foul roots should be cleaned and disinfected with the rubber-dam in position, and the last of the operation should be done with freshly disinfected instruments. The cavity should then be perfectly sealed with a temporary filling of gutta-percha, or other suitable material. In no case should this filling be removed at a subsequent sitting, before the readjustment of the rubber-dam and disinfection of the included parts. In those cases in which the pulp chamber is opened for the first time, as in the removal of a living pulp, or a pulp destroyed by the operator, we should never have abscess occur; indeed, it should be impossible, except by indirect infection. This also is a matter that should always receive our attention. Unless the exigencies of the case especially demand it, we should not open a pulp chamber at a time when there is an active focus of suppuration in progress anywhere in the body of the patient. In this statement I do not include chronic discharges, though these must in every case be regarded as unfavorable.

If we have found the conditions favorable, abscess following the removal of the tooth's pulp should be impossible. We may pass our broach through the apical foramen and wound and lacerate the tissues, and possibly provoke an inflammatory movement, but if the root canal and the instrument be aseptic, abscess cannot occur. This I have tried experimentally in a sufficient number of instances to be convinced that it is practically true, as well as theoretically true. In several cases I have, in this way, aroused a considerable degree of inflammation, but in no case did abscess occur. These experiments were made with broaches cleaned by heat.

While all of this is true, it is absolutely essential that both the canal and the broach be aseptic. Few men who have not had practical experience in the cultivation of microbes can form an adequate idea of the readiness with which they may be carried into the tissues of the apical space by the broach. I have often passed a surgeon's platinum suture wire, after having brought it to a glow to completely disinfect it, into a foul root canal, and then into stiff gelatine cultivating media, four, five and six inches, and have seen the development of microbes along the track of the wire from end

to end. If these organisms may be carried into a stiff gelatine in this way with a perfectly smooth platinum wire, what may we expect from a barbed broach thrust through a foul root canal into the tissue beyond ? If this does not produce abscess, it will be because the root canal happened not to contain pus-forming microbes. I have myself, as I think, produced abscess in this manner many times, and from what I know of the practice of others I am satisfied that such an accident is of very frequent occurrence. In the cleaning of contaminated canals, and all root conals to which the saliva has had access should be regarded as contaminated, no attempt should be made to reach the apex before the introduction of a reliable disinfectant. The danger of forcing microbes through, into the tissues of the apical space, is so great that they should be destroyed before the attempt to reach the end of the canal is made. Then we may risk passing the broach to the very end of the canal, and not before. The rule is simple enough. To have alveolar abscess, we must first have microbes in the tissues. If the canals have been exposed to the fluids of the mouth, we must not risk forcing its contents through the apex until it has been rendered aseptic. Then if the aseptic material is forced through, it may produce a transient inflammation, but it will not beget abscess.

What is the teaching of the facts developed in case of infection of the tissues ?

First, I may say that it is clear that there are many infections that are successfully resisted by the tissues, and the microbes eliminated without the formation of abscess. Second, where the area of the abscess is small and the general condition of the patient good, the tissues, by their own unaided powers, will expel the intruders with the pus first formed, or very soon thereafter, if proper opportunity is presented. This only requires free discharge of the pus, with care that there is not continuous reinfection. It should be stated that pus itself should be regarded in the same light as a stale cultivating medium, in which the organism which produced this condition is incapable of growing until transferred to fresh media; hence, when the central focus of the inflammation, or of the lymph deposit, is broken down, the organisms have become greatly depressed from the presence of their own products, and are readily expelled by the young connective tissue cells, which have formed themselves into a compact wall about the abscess. There-

fore, the source of continuous reinfection, if such exist, should be eliminated, for this is the factor which begets chronicity. In case of simple chronic alveolar abscess, this source is the pulp canal. In this space the micro-organisms are out of reach of the tissues, and a new growth occurs, with a reinfection about the apex of the root, every time fresh pabulum has entered the root canal, and these infect any fresh lymph deposits about the apex of the root. Hence the abscess becomes chronic. Dead bone, with its Haversian canals, offers the same opportunity for growth of organisms in a harbor beyond the reach of the tissues. If, on the other hand, this bone be aseptic, it will be absorbed by the tissues, and removed. With the root of the tooth this sometimes occurs to our sorrow, but in case the root of the tooth becomes denuded of its tissues, this tendency is here largely counteracted by another, which is the tendency to the reinvestment of the root with cementum. But in order that either of these can occur, the part must be aseptic, or free from microbes. In any such cases the microbes, if present, have a wall to lie against, and are to that extent protected. The active tissue is on one side only, instead of surrounding them. Experience teaches us that in this case a chronic condition of abscess is in many instances maintained. This requires antiseptic treatment to dislodge the microbes, but in all ordinary cases of alveolar abscess, the elimination of the source of continuous reinfection from the root canal is sufficient to cure chronic alveolar abscess.

As a rule, the microbes of pus formation are unable to maintain themselves continuously when surrounded by living tissues.

In the presentation of this paper the plan which I have endeavored to follow has been: First, to present a synopsis of former views, showing the facts that have become firmly established. Second, to show the facts recently developed, and how they should modify the former views. Third, to show how these should modify our practice. In such an investigation, it will be found that no fact established by former inquiries has been lost, or even reduced in importance. It is only suppositions that must be dropped, for which freshly gained facts are substituted. The demonstrations of direct observation have been correct in the past, and this gives assurance that the developments of the observations of the present will stand the crucial test of future observers.

Reports of Society Meetings.

AMERICAN DENTAL ASSOCIATION.

TWENTY-SEVENTH ANNUAL MEETING.

REPORTED FOR THE INDEPENDENT PRACTITIONER.

The twenty-seventh annual meeting of the American Dental Association convened at the Park Theater, Niagara Falls, August 2, 1887. The meeting was called to order by the President, Dr. W. W. Allport, of Chicago, at 11 o'clock A. M.

The reading of the minutes being called for, Dr. Shepard moved that, as they had already appeared in print, the reading be dispensed with, and the motion was declared carried. The secretary, however, as a report of the board of officers, read the correspondence concerning the change of the place of meeting, the protest of Drs. Barrett and Abbott against the abandonment of the meeting, and the final decision of the board, that the meeting should be held at Niagara.

The roll was called by the treasurer, and a large number of the permanent members were found to be present.

The reports of the various committees and of the officers were presented, and the annual grist of amendments to the constitution was ground out. A number of these were presented at the meeting of 1886, chiefly relating to the duties of the Executive Committee, enlarging the powers of the chairman, etc., and they had necessarily been laid upon the table for one year. They were all rejected save one, which gave the chairman authority to call a meeting of the board at the request of two of its members. The number was changed to five, and it was then adopted.

The Treasurer presented his annual report, which showed a balance on hand of $2829.64.

Both Vice-Presidents being absent, the President called Dr. Crouse to the chair and read the President's annual address. It was largely historical in character, was of considerable length, and hence no abstract could do it justice. There were a number of excellent suggestions for the society in it, and it showed a great deal of care and research in its preparation. It was heartily cheered upon its completion.

Dr. Atkinson took exception to some of its statements of fact, and objected to giving it to the world as an expression by the Association. He offered a resolution that it be referred to a Special Committee for revision, but a substitute that it be referred to the Publication Committee, as usual, was carried almost unanimously.

TUESDAY EVENING SESSION.

After the usual preliminary business, the report of the Committee on Credentials, etc., Section II—Dental Education, Literature and Nomenclature—was called, and the report was presented by the secretary of the Section, Dr. Ottofy. The report was an exhaustive one, and its reading occupied more than an hour, but it was so thorough and completely systematized that it was listened to with unflagging interest. The condition of educational affairs in the different countries of the globe was recapitulated, and the legal and professional status of dentistry considered. In adverting to educational matters in this country, the report spoke of the good work that is being done by Meharry College, and recommended that additional facilities be furnished colored students of dentistry, that they may be enabled to minister to the wants of their own race. The new books and journals of the year were reviewed, and the status of our literature set forth.

Two papers were presented from the Section, one on Nomenclature, by Dr. Atkinson, and the other on Early Education, by Dr. Crouse.

The first paper was read by its author, and was a plea for a revision and proper classification of professional terms.

The second paper was likewise read by its author, and was largely given up to a consideration of the advantages to be derived from technological study.

The essayist said that education is understood to be the accumulation of knowledge. But too often the young man who has secured his diploma from a college, the possession of which is supposed to fully qualify him for his life's work, is practically without education. He may have a reputation for scholarship, but the knowledge that is most essential for practical success in life has not been acquired. He may have literary training, but his instruction in the practical arts has been entirely neglected.

Kindergarten schools originated in the endeavor to train children in manual labor. It was found that such occupations tended to

strengthen and develop the mind. It was not alone the hand that was employed, but the head was also engaged. The development of the kindergarten theory in education bids fair to revolutionize the educational affairs of the world. Our dental colleges are but an elaboration of this idea, for they train the mind and hand together, and this will account for the rapid development of dental educational matters.

DISCUSSION.

Dr. Atkinson—When, in the presence of so many teachers as are here present, there is silence upon such a subject as this, it teaches us its vastness. The review of Dr. Ottofy is a labored one, and for it I return my most hearty thanks. If we could once grasp the idea that is next us, we should have made great advance. The sober second thought is of Satan, always. We have heard something of ptomaines. They have been known to exist for a long time, but the experts who were searching for the causes of certain changes were all the time looking for some mineral salt that was inimical to the body. They never conceived the possibility of the formation of an alkaloid that should induce a retrogressive metamorphosis. The presence of this alkaloid will account for many changes which have been attributed to living organisms.

Dr. Abbott—In his excellent paper, Dr. Ottofy maintains the superiority of German schools over all others, and attributes this to the asserted fact that Government appoints the teachers. To this I take exceptions. In Berlin there lives one man who has charge of all the schools, and naturally he likes to surround himself with men who are in accord with him, and who will advance his own ideas and theories. In a German University no student is permitted to receive instruction from any one save the regular professor. In the dental department of the University of Berlin, but one set of ideas can be inculcated. No clinics in operative dentistry are permitted, save those which illustrate the special teachings of the regular professor of operative dentistry. This tends to a narrowness and exclusiveness in practice. The American people have more knowledge and a better appreciation of dentistry than any other in the world, and the result is that our dentists are encouraged to yet higher attainments. We are making continual advancement, and by means of our clinics and societies the knowledge is generally disseminated. In our schools, operators of widely differ-

ing methods are invited to give clinics, and thus the students have the advantage of a comparison of all methods, and are enabled to select the best, or that which is best adapted to their capabilities.

In other countries the people must be educated to an appreciation of high class dentistry before there will be the same skill exhibited by operators that there is here. You may travel Germany over, and you will scarce find a practicing native dentist who is competent for the class of operations performed by our average country dentist. And yet they affect to look down upon American dentistry. Often without sufficient knowledge of their business to be competent judges of what constitutes a good operator, they assume all the airs of virtuosos. Unable to insert even a fourth-rate amalgam filling, they talk learnedly, and assume to sit in judgment upon men whose operations they cannot even comprehend. If among them—and Germany is not alone in this thing—a progressive man gets a new idea in his head, no opportunity will be allowed him to exhibit it in a practical manner, but he will be summarily squelched for daring to be progressive.

Dr. Winder—Concerning nomenclature, it is difficult for language exactly to express just what is the conception of an idea. Pathologists endeavor to use a language peculiar to themselves, and they are continually introducing new terms. It is impossible to reduce to a system a language that is thus continually undergoing changes.

There has been a disposition on the part of some to make our system of education conform to European standards—to so alter our whole method of teaching that it shall comply with the requirements of the laws of foreign nations. That is exactly what we do *not* want. American dentistry certainly is not inferior to that of any other people, and we cannot make American dentists without giving prominence to the practical part of dental education, any more than playing upon the violin can be imparted by didactic lectures. The secret of the action of foreigners towards American dentists is that they are afraid of them, and cannot stand their competition, hence their only course is to fence them out.

Dr. Guilford—The report of the Section is very exhaustive. In the two papers presented there is a wide difference. One began at the very bottom, while the other was away out of comprehension, even at its commencement. The paper of Dr. Atkinson may be

understood by him, possibly, but I doubt if any one else has any comprehension of what it was all about. The paper of Dr. Crouse is too elementary. It might possibly have place before a local society of neophytes, but it is scarcely adapted to a body that pretends to be scientific, like this. The education of children by handicraft is all very well, but we should remember that all this is elementary, and that really educated men are called upon to consider abstract things. When one has attained what is called a liberal education, his mind, his comprehension is broadened, and he is enabled to grasp any subject with greater facility. The trained mind makes a better hand, and the broadly educated man is always the better mechanic, other things being equal. An ignorant man is, under no circumstances, the better for his lack of discipline, while a liberal, even a classical education, makes a man the better qualified for any position in life.

Dr. Crouse—I should be more surprised at the lack of comprehension of kindergarten training, did I not know how wide-spread is the ignorance concerning it. Few, even among teachers, know what it is. It is a system of actual demonstration, rather than of memorizing. The usual college course is a mere matter of fashion. I have asked many college graduates if they had made any use of their college training, and they invariably answered, No. In the Polytechnic School of Boston, seventy-five per cent. of the graduates secure engagements before they close their training course.

Dr. Taft—I think the difficulty in our nomenclature arises from a lack of definite knowledge of the thing to be named, together with an ignorance of language. We find no trouble in exactly nominating anything with which we are well acquainted. The people whom we know intimately we can easily name, but those whom we have but casually met are not readily nominated, while those with whom we have no acquaintance we cannot name at all. Many of our misnomers arise from bad habits. We speak of the fang of a tooth, because we have associated with those who have miscalled it.

There are various phases of the educational problem. Dr. Crouse began, perhaps, on a lower plane than was necessary. We are more interested in technical than in preliminary education, and yet dentistry is at fault in permitting any one to enter upon a course of professional study before he has mastered preliminary science.

It is within the power of dentists to discourage those who would commence technical study without either natural or acquired ability.

We speak of training "students." Every progressive man is a student through all his life. The time of graduation is but the commencement of another course of study. No man's education is ever completed. There are in dentistry many men who were without early advantages for study. To those, a post-graduate course would be of the greatest advantage. These might be established in our colleges, and men who had been long in practice could go back for study, even if it were but for a month.

What shall I say about teachers? How many men make dental teaching the work of their life? At the best, it is usually but incidental. If our schools were sufficiently endowed to enable the teachers to devote their whole time to that pursuit, how much better might it not be for both schools and scholars?

WEDNESDAY MORNING SESSION.

After the transaction of the usual routine business, the consideration of the report of Section II was continued.

Dr. Butler—The report as read by the Secretary of the Section, while recommending that the college terms be lengthened to nine months, states that various excuses are made by the schools for the non-observance of the recommendation. If the colleges publish announcements promising certain things, the students are entitled to the benefit of all that is announced. Every matriculant is required to sign a kind of contract, promising faithful attendance, etc., but are not the schools themselves bound to give all that is pledged in the announcements? It is urged that there is not time for the special features promised. If this is the case, they should not be announced. Much good work is being done, but better is possible, and should be secured.

Dr. Pierce—The gentleman evidently has never served as the dean of a college. The burthen of the letters from students is, how short a time will suffice to put me through? Not how much can I learn, but how quickly can I obtain a diploma? We have a term of nine months, five of which are obligatory, and the other four are but poorly attended.

The purpose of the paper on primary education has not been properly understood. It marks an advance when the young are trained to habits of precision. I have had some experience in a

school which received children that had been expelled from other schools, and I have observed that the most refractory were reformed by presenting a system in which they become interested. In this the punishments were deprivation of attendance at certain lessons, and it was effectual.

Dr. Darby—It would seem that educational advantages are not equally appreciated. Some students want all the avenues of information opened to them, while others only ask for just sufficient to obtain a diploma. In the seven months' course at the University of Pennsylvania, we lose students, because they can graduate at other institutions on a five months' course. We wish very much to prolong the course to nine months, and we only wait for the time when the students will accept it. It is the man who possesses a special fitness for any work who succeeds. Broad culture is desirable, but is not always attainable. We find men with excellent general training who have no adaptation. Others, with little schooling, but who have a special fitness, far excel them in life's work.

That which I desire especially to emphasize, is the readiness of the schools to advance the status as fast as the profession and the students will accept it.

Dr. Atkinson—Those of us who have been members of this society from the beginning, can mark the advance that has been made. I see before me many men who began very low. What has raised them to their present intelligence? Not the iron rules of the schools; not a thoroughly digested system, but practical work done outside the recognized text-books and school curriculums. The colleges assume that they have all the truth within an awfully restricted syllabus. It is individual and selfish ambition that fills the chairs in our colleges, and not the demand of the schools for men who are, by training and observation, best fitted for the positions.

Dr. Barrett—Permit me to say a few words concerning nomenclature. We are all aware of the embarrassment which at times overtakes us in the endeavor exactly to express what the mind has conceived. But in the majority of cases this arises, not from the barrenness of language, not from the paucity of terms, but from the multiplication of definitions, and the redundancy of names for the same thing. In the examination of an object, each of us sees some special phase or characteristic, and to that aspect as presented we desire to give a definite name. This special feature may be

very clear to us, without having any meaning to the rest of the world, because they do not see it as we do. As an instance, Dr. Atkinson frequently refers to the revelations of "Angels" as the source of his particular ideas. This term has no significance to the rest of us. We look upon our conceptions as having their origin within us—as having been elaborated from our inner consciousness—and we have no use for "Angels" in this connection, or for other terms of Dr. Atkinson which express phases that he may possibly see clearly enough, but which have no existence for the rest of us. So in the attempts to express personal conceptions of things rather than the universally acknowledged standards, there is a multiplication of words, our nomenclature is loaded down with verbiage and confusion ensues.

Another source of perplexity arises from the fact that many of us are ambitious of using extremely technical language. We are fond of fire-new words, and of high-sounding terms. We are anxious to employ the latest invented phrase, and some of us seem ambitious to coin jaw-breakers, and thus get the start of every one else. I am sorry to see that at the present time there are no more "mechanical dentists." All are practicing "prosthetic" dentistry, and the good old term is relegated to the past. Every year at these meetings our vocabulary is enlarged, and new technical terms are added. One has been sprung upon us in this debate, and henceforth "metabolism" must take its place among us. What is the matter with the good old word "digestion?" In what respect is the new term better? It is this inventing of three or four words for one idea that brings confusion. The reform in our nomenclature should be toward simplicity, and not the endeavor to introduce yet more nominations where we already have sufficient.

Upon motion the subject was passed.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

Reported for the Independent Practitioner.

The annual meeting of the National Association of Dental Examiners, a body made up of representatives from the State Boards appointed under the laws regulating dentistry, was held at the Park Theatre building, Niagara Falls, commencing Monday, August 1, 1887, Dr. J. Taft, of New York, being President, and Dr. F. A.

Levy, of New Jersey, Secretary. There were present at the opening the following members: From Illinois, Dr. G. H. Cushing; from Indiana, Dr. E. C. Kirk; from Ohio, Drs. H. A. Smith, J. Taft and C. R. Butler; from Kentucky, Dr. A. Wilkes Smith; from Massachusetts, Dr. L. D. Shepard; from New Jersey, Dr. Fred. A. Levy; from Maryland, Drs. E. P. Keech and T. F. Waters; from Alabama, Dr. C. P. Robinson, who stated, however, that he was not authorized to represent his board by any formal action.

The minutes of the previous meeting were read and approved. Dr. J. B. Willmott, of Toronto, a member of the Canadian board, was, upon motion, invited to the privileges of the floor. The chairman read a prepared order of business, which was adopted without debate.

The chairman first called for reports from the various boards, which were made by the representatives present, showing the number of applicants examined, the number of permits to practice granted, the manner of conducting examinations, and the status of the profession in regard to the State law. Comparatively few examinations were reported. Dr. Keech said that in Maryland every dentist, as far as they knew, was registered. Dr. Shepard said that Massachusetts had finally secured a law after repeated failures, and it had been obtained through the labor of a man who had not been identified with dental progress, nor with dental societies. Yet, at the sacrifice of considerable time and money, this dentist had obtained the passage of a law, when all the others had failed. The act was imperfect in some respects, every dentist who should hereafter enter upon practice being obliged to pass an examination, no matter from what college he was a graduate, the diploma of Harvard receiving no more recognition than those of the most distant school. There was one very singular fact in connection with the putting of the law into effect. During the last few days allowed for registration, more than fifty new signs were hung out in Boston, some being those of women, others of students, and some of children.

The methods of examination in the different States differed, in some it being entirely oral, while in others it was written, each examiner being allowed a definite number of questions, and required to mark the percentage of correct answers, the applicant falling

below an established portion being rejected. In some boards no very systematic course was adopted, the examiners voting to pass or reject the candidate, according to the impression which he had produced upon their minds.

Dr. Kirk presented the cases of two colleges, concerning the diplomas of which the Indiana examiners desired the opinion of this Association. Graduates from the Louisville College of Dentistry, and from the dental department of the State University of Tennessee, had been refused permission to practice in Indiana. Graduates from the Louisville College of Dentistry had appeared before them, who could not name a single text-book that had been used in the college, nor was it possible to determine that the applicants had even really attended any full course of lectures. Students matriculated in March, 1887, were graduated in June of the same year. One of these showed no evidence of any knowledge of dentistry whatever.

The Tennessee College had repeatedly graduated students after attendance upon but one course of lectures.

Dr. Wilkes Smith, the Dean of the Louisville College of Dentistry, explained that the students complained of had been granted diplomas by the Dean of the Medical Department during the absence of Dr. Smith, and acknowledged that a mistake had been committed, which should not again occur.

Dr. W. C. Barrett, being present, was voted the privileges of the floor, and the chairman called upon him to express his views upon the subject at issue. He said that every member of this association should recollect that a grave responsibility rested upon him. In the competition for students, the colleges were liable to slacken the rules to admit applicants who should be rejected, and to promise graduation, in advance, to men who could not, in the limited time, qualify themselves. Villainous work had been done by colleges, and foreigners, especially, had found it easy to obtain diplomas. If the State Boards of Examiners stood up squarely to duty, they had it in their power to neutralize this, and to call the colleges to a strict accountability for the charge committed to them. But this was not to be done by letting down the standard in any individual instance, under the plea that an infraction of professional law was through a misunderstanding, and that although a diploma had been granted irregularly, it was due to inexperience or error. If a col-

lege assumed to grant diplomas, it was but fair to hold it responsible for the work done, and they should not be allowed to plead the baby act, but should be disciplined. Every school must be judged by its acts, and not by its intentions. If a mistake had been made by a school, let it manfully admit it, accept the proper punishment in a spirit of humility, and take care that no more such errors be chargeable to it.

The question of the Louisville Dental College was referred to a committee of three, to examine and report. Drs. Shepard, H. A. Smith and Keech were appointed such committee.

The question of the regularity of the dental department of the University of Tennessee was referred to a committee of three, consisting of Drs. Cushing, Butler and Keech.

At the Monday evening session Dr. Willmott appeared in behalf of the Royal College of Dental Surgeons, of Ontario. At a previous meeting the Board had declined to recommend its diplomas as sufficient qualification for practice. Against this he desired to enter a protest, and spoke for some time, urging a recognition of the Toronto diplomas. Upon motion this was referred to the same committee to which the Louisville College matter had been committed.

At the Tuesday afternoon session, this committee submitted the following report:

The committee to whom was referred the application of the Royal College of Dental Surgeons of Ontario, to have rescinded the action taken by this Association at its Minneapolis meeting, which decided that the L. D. S. should not be accepted as equivalent to a dental degree to save examination by the Board of Examiners, respectfully report that the action taken by this Association should stand, for the following reasons:

First—That the L. D. S. granted in Ontario is a local license to practice, not recognized in some of the Provinces of the Dominion, nor in Great Britain, rather than a degree in dentistry conferred upon the completion of a college education. In this respect it is analogous to the licenses granted by our State Boards, which are not generally recognized by the Boards of other States.

Second—That when L. D. S. is granted as a degree in dentistry, on the completion of the regular course in their school of dentistry, it represents two courses of four months each, while our rules require two courses of at least five months each.

Third—That in the last announcement they advertise to grant the L. D. S. for a fee, and after examination, upon any non-resi-

dent who has been in practice three years, exclusive of the two years of pupilage, *sine curriculo.*

Upon motion the report was unanimously adopted.

The second committee of reference reported as follows:

Your committee, to whom was referred the action of the Indiana State Board of Dental Examiners in relation to the rejection of the dental diplomas of the University of Tennessee, find that the University has granted dental diplomas to those who have attended but one course of lectures in any institution, which procedure is in direct opposition to the resolution of this Association adopted in 1884, in which it resolved that after the sessions of '84 and '85, the various State Boards composing the Association be instructed to refuse the diploma of any college which does not require as a prerequisite for graduation attendance upon two full, regular courses of lectures, and practical instruction of not less than five months' duration, and held in separate years.

The University of Tennessee must have been fully cognizant of this fact, as copies of the transactions of this association were forwarded to them, and the transactions were also published in the dental journals; hence they must have issued diplomas after the date above named, with the certainty that they would not be received by the State Boards represented in this body, and can therefore have no ground of complaint against any board for rejecting them.

Your committee find that the Indiana Board acted as in duty bound, and recommend that this Association fully endorse their action in this case.

Upon motion the report was unanimously adopted.

At the Wednesday afternoon session, the committee to whom was referred the Louisville Dental College matter reported as follows:

In a circular issued by the Secretary of the Indiana State Board of Dental Examiners, dated July 5, 1887, notice is given that "the Board has decided against accepting the testimonials from the Dental Department of the Hospital College of Louisville, Ky."

The Indiana Board has presented its statement of the case to this association, and the Dean of the Dental Department of the Central University of Kentucky (Louisville College of Dentistry) has given a full statement of its side of the case—has made a frank acknowledgment of the mistake made, and has given assurances that hereafter no one shall have cause to complain, and that so far as it is in the power of the college it will rectify this mistake and any others made.

Therefore, resolved: First—That the Medical Board only did its duty in refusing to accept diplomas from said college in this particular case.

Second—It is recommended to all State Boards to confer with a college whose diplomas are questioned before publishing it as derelict, to the end that no injustice may be done, particularly to those who have honestly earned their diplomas from such institution. It is possible that such a diploma might be issued without the slightest intention, on the part of the college, to depart from the standard governing the boards, as was claimed was the case in this instance.

The report was, on motion, unanimously adopted.

The Association elected as officers for the coming year:

President—Dr. Geo. H. Cushing, Illinois.

Vice-President—Dr. T. S. Waters, Maryland.

Secretary—Dr. Fred. A. Levy, New Jersey.

After the reading of the minutes, the Association adjourned to meet on the Monday preceding the next meeting of the American Dental Association.

CONNECTICUT VALLEY DENTAL SOCIETY.

SEMI-ANNUAL MEETING, HELD AT MONTREAL, P. Q., JULY 19 TO 21, INCLUSIVE.

REPORTED BY GEO. A. MAXFIELD, D. D. S., SECRETARY.

The meeting was called to order at 10.30 A. M., President Stebbins in the chair.

C. F. Trestler, M. D., L. D. S., President of the Board of Trustees and Examiners of the Dental Association of the Province of Quebec, welcomed the society to Montreal as follows :

Mr. President, ladies and members of the Connecticut Valley Dental Society :

As President of the Board of Examiners of the Dental Association of the Province of Quebec, it gives me the very greatest pleasure to extend to you our humble welcome. While appreciating how much we are both indebted for a great deal of the theory and science of dentistry to the investigation of British, French and German savants, we know that to the zealous and persevering practical work of our American cousins, dentistry owes the position it occupies among the learned professions of the day. Your conventions have become dental missionary conquests, where doubt is dissipated and the light of truth is revealed. We feel honored, as we feel sure

we shall be profited, by your presence in Montreal, and we trust that you may all—especially the ladies—carry home with you nothing but pleasant recollections of your first visit to the metropolis of our Dominion. Let me once more, Mr. President, ladies and gentlemen, reiterate the gratification we enjoy in welcoming you individually and collectively to Montreal.

Dr. Stebbins, President of the Society, responded as follows:

Mr. President, allow me to return you and your Association sincere thanks on behalf of the Connecticut Valley Dental Society, for this cordial welcome to your beautiful and renowned city, and especially for your hearty greetings. With you, we ascribe all honor due the learned of our profession on the other side of the water. I suppose it is universally conceded, that in America dentistry has attained a higher standard and made more marvelous progress than in any other country. I believe that New York City lays claim to being the birth-place of many things that have contributed to make our profession what it is. This society comes to sit with you in fraternal council, and discuss those topics that are of mutual interest. We have not dispelled all darkness, nor have we apprehended all truth concerning our calling, but having apprehended some, we press forward. We have anticipated much of good and pleasure in coming to Montreal, and the manner in which we are received reassures us those anticipations will be more than realized.

We considered it appropriate to bring our queens with us to visit the land which has for fifty years been ruled so graciously and beneficently by that Christian Queen of queens—Queen Victoria. When Dr. Lovejoy invited the society to hold this meeting here, in his eloquent speech he said we must bear in mind we were to visit a foreign country. I observe nothing foreign about this occasion. It seems to me we are one people. Some young ladies (in the States) of vivacious natures are impelled to make alliances and engage in the affairs of life contrary to parental wishes, and even in violation of parental injunctions, but when success is attained and fortune smiles on the venture, parental love triumphs over displeasure, and the children of the once deemed wayward girls are welcome at the family domicile.

One hundred and eleven years ago this month, thirteen colonial daughters entered into an alliance with the American Eagle, and

"set up house-keeping" on their own account. I am informed that the parent Government was not well pleased at first, but finally withdrew its objections to the union and entered into friendly relations. We are descendants of those daughters, and come to visit the parental domain and enjoy the rich things prepared for us. In looking over the bill of fare (programme), I observe not only that various dishes are given, but the cooks are named who have prepared them for us. Such a display of names and articles assures us we are to be entertained and fed. It is with pleasure I extend you, collectively and individually, an earnest and cordial invitation to attend the meetings of our society whenever it may be your pleasure to do so, and we will endeavor to give you a hearty reception.

[The abstract and discussion of Dr. W. Geo. Beers' paper on "Alveolar Abscess" is left till the next number, that the discussion of Dr. Black's paper may accompany its publication.—EDITOR.]

WEDNESDAY MORNING SESSION.

Meeting called to order at nine o'clock.

Dr. G. V. Black read a paper on "Recent Theories of the Formation of Pus, Considered with Reference to Dental Operations." (See page 462.)

DISCUSSION.

Dr. Barrett—Dr. Black has answered the question that I have often propounded to myself: What is pus? For many years I have been considering this matter, and to-day I get a definite and precise answer. A few years ago I asked Dr. Atkinson that question, and received in return six or eight pages of written matter, but he did not answer the question. I again wrote, and asked him, "what is pus?" and he once more replied with six or eight pages. Again I wrote, and asked, *what is pus?* and he finally answered, "Pus is dead blood," and this was so indefinite that I closed the catechism. Now I hope we shall have a discussion that will not lead us away out into the woods, a thousand miles from anywhere.

Dr. Alexander—I would like to know which of the tissues contains or furnishes the most nutritive elements in supporting alveolar abscess.

Dr. Black—The connective tissue.

Dr. Cook—What length of time will these microbes live in a healthy tissue?

Dr. Black—If a healthy man's blood is contaminated they will disappear in a few days.

Dr. Atkinson—A few hours.

Dr. Black—Unless they are of a kind that thrive in the blood.

Prof. Mayr.—Dr. Black made an axiomatic statement, that chemical substances would not change of their own account. While a plausible statement, I do not think that it is yet sufficiently proved. As an example, I would mention cyanate of ammonia. You may keep it after crystallization in whatever way you please, it will change in the course of time into the entirely different carburet or urea.

Dr. Black—This substance is probably not at any time an actual compound. The elements that have been presented to each other in their passage through certain processes for obtaining an equilibrium form cyanate of ammonia, but the process does not stop at that point, but goes on, until the affinities are fully satisfied. When these chemical processes once stop, they are at a final end.

Dr. Atkinson—Dr. Black says: "Pus corpuscles are amœboidal bodies." They are not amœboid until they die, and they are not pus corpuscles until they are deprived of the tissue-building power.

Dr. Stevens—Before the speaker goes on further I would ask, what is pus?

Dr. Atkinson—I said pus was dead blood, and the sum of what Dr. Black said made it so, too. I would like to see how he distinguishes between live and dead matter. If he sees an amœba that is asleep, he says it is death.

Prof. Mayr—To define pus in a few words is very difficult. The definition of Dr. Atkinson, as dead blood, might be misleading. We may take blood and, under proper antiseptic methods, may allow it to die. Blood taken from the body is not dead yet, by any means; it keeps alive for a long time, for days, but it finally ceases to show the characteristic properties of blood as it is in the body, and we may very properly call it dead. Now pus is very different from that. It is not only dead blood, but it is entirely changed chemically. To define pus completely would be like defining a chemical laboratory. I can say it is a shop where glasses, bottles and chemicals are, but that is a drug store too; and pus is the product of such a laboratory, and the whole chemical laboratory itself, where the chemists are microbes and the products are ptomaines.

Subject passed.

Editorial.

CONCERNING CONTESTS.

It is with regret that we see in *The Dental Headlight* correspondence between a dentist of Atlanta, Ga., and Dr. E. Parmly Brown, concerning the Herbst method of filling teeth. We are of the opinion that Dr. Brown's letter will convey an impression which its author scarcely intended. Dr. Herbst did not come to America in a spirit of bravado, nor to enter into a contest with any one as to his relative skill as an operator, or even as to the relative merits of the method of introducing gold which goes by his name. During his whole visit here he exhibited a becoming modesty of demeanor, and an anxiety to learn from our best exemplars, which gained him many admirers. At his very first appearance before a body of dentists, he explicitly said that he came to submit the process which he had devised, and which was the child of his necessities and not of his personal ambition, to the criticisms of those whom in all the world he thought best qualified to judge of its merits. He did not offer it as a substitute for old and approved methods, but as a coadjutor. It is not a succedaneum, but an auxiliary. Freely did he give his time, and unweariedly did he expend his energies, without ever receiving or attempting to obtain one cent for his public or private clinics. Who among us can boast such a truly professional spirit? What American dentist has visited Europe with such unselfish aims, or has left such a record as the result of his visit?

Dr. Bödecker's name has been, very much to his regret, we are certain, introduced into the discussion. We have had personal knowledge of the great sacrifices of time and money made by Dr. Bödecker, with the sole desire to benefit dentistry and his brother dentists. To our knowledge he has never spoken, but others have computed that he must have expended at least $3,500 in money, besides much more in time, with no thought whatever of reaping any personal benefit from it. He did it because he loved his profession and his professional brethren, and because he believed that the so-called Herbst system was fraught with great good to dentistry. He still believes it, and who dare question either his intelligence or honesty? Clinics were given all over the country. Who

do dentists imagine paid the expenses of the trips, and furnished the gold and material in most of the cases? Dr. Herbst is a poor man, who all his life-time has traveled but a rough road, and it was beyond his power to give more than his time.

After all the unselfish labors of Herbst, after all the sacrifices of Bödecker, and the generous and unselfish treatment which both extended toward other operators who antagonized their benevolent efforts, it does seem a little cruel that they should be placed in an attitude so foreign to that which they of themselves would assume. We are not personally engaged in the practice of the Herbst method, but we feel that we owe a great weight of gratitude to the men who labored so hard for our good, in common with that of others, and may our hand be palsied ere it writes a word that shall express anything but appreciation of the debt.

That Herbst's visit to America resulted in a general quickening of dental intelligence and a broadening of our practical views, few will care to dispute. Good dentistry does not exclusively consist in the ability to punch a definite amount of gold into a special-sized hole. There is a broader basis than mere mechanical skill, upon which dentistry, as a profession, must rest. There is a professional modesty and courtesy, an ethical spirit and tone which must exist if we are to be numbered among the liberal professions. What matters it to dentistry which of her favorite sons, Brown, or Webb, or Abbott, or Bödecker, could pack the most gold into a glass tube? What does the average dentist care about this question of personality? Good practice means something infinitely above and beyond that. There is a principle involved, and for the maintenance of that we are all supposed to be earnestly laboring. Away with the idea of a personal contest for superiority! We must take broader views than this if we are ambitious of any real good. If our names are to be inscribed upon the roll of honor, we must not forget that we cannot segregate our own professional interests from those of our brethren, without being the sufferers.

We have made this correspondence the text for a little editorial sermon, not that we may adorn a tale, for, as was stated at the outset, we have no idea that Dr. Brown intended or conceived that a construction which his letter will easily bear would be placed upon it, but that we may point a moral which all of us at times need seriously to ponder over, Dr. Brown no more than the rest of us.

THE MEDICAL CONGRESS.

Before this number shall have reached any of its distant subscribers, the International Medical Congress of 1887 will have commenced its sessions. What it will bring forth remains to be seen, but high anticipations of a profitable meeting are indulged in. The Congress in London stimulated an inquiry and encouraged a study that has resulted in a marked advance in dentistry. It is sincerely to be hoped that the coming meeting will be productive of yet greater good, and that its influence will be actively felt for many years to come. While the social aspects of the occasion should by no means be forgotten or neglected, it should steadily be borne in mind by those having charge of the affair that men do not come from great distances to dine well, or to attend brilliant entertainments. Unless the papers and discussions are worthy the occasion, the meeting will be a miserable failure, even though many thousands are in attendance and hospitality and good cheer are unlimited. The Congress meets for scientific purposes, and if these be not attained it meets in vain.

The foreign visitors who come to attend the meetings of Section XVII will be most warmly received. We know that we but express the hearty sentiments of every American dentist when we bid them an earnest welcome, and assure them that our hearts and our hands are as open to them as our doors. But they must not expect to find things precisely as at home. Americans are a practical people, and they give especial prominence to practical work. The meditative Englishman, the philosophizing German and the experimentalizing Frenchman will not find us indifferent to their methods, but they will see a prominence given to demonstration that is not witnessed at their homes. They will note, perhaps with surprise, that much of the time is given up to clinics and exhibition of appliances and methods, and the suspicion may enter their minds that too much attention is given to the mechanical. If we may with propriety speak of "American" dentistry—and when the term is used it of course simply means American methods of thought and practice, and does not imply a claim for any special system—it is essentially practical. We have not made such theoretical advance as have some of the older nations who are richer in true scientific lore than are we, but we are vain enough to believe that in operative work American dentists are the peers of any. A young and

growing country has many mechanical obstacles to overcome which are unknown to nations that were old before America was discovered. This has developed the inventive and operative faculty in our people, and the dentistry of America partakes of our national characteristics. It will be our pride at the coming Congress to exhibit to the world the phases in which we believe we most excel. When our foreign brethren visit us then, let them not feel impatient at the prominence here given the actual, operative department of our profession, and we on our part will diligently strive to profit from their expositions of the theoretical, speculative, and more strictly scientific aspect, and a mutual respect and admiration with increased esteem will ensue.

THAT TWO HUNDRED DOLLAR PRIZE.

Every honest man will, at heart, probably, sincerely rejoice that the American Dental Association, at its late meeting, removed what many members believed was a dark stain upon its escutcheon. In 1882, on the recommendation of the President, Dr. H. A. Smith, the Society offered a prize of two hundred dollars, "to be awarded by a special committee of three members of this Association, to be appointed by the President, to the author of the best paper upon the Etiology of Dental Caries, the paper to be based upon strictly original investigation, and to be presented to this Association in the report of Section VII." (Note the language used.)

At the next annual meeting, the committee, consisting of Drs. C. N. Pierce, E. T. Darby and H. A. Smith, presented a paper by Dr. W. D. Miller, of Berlin, and closed their report as follows: "Your committee would, therefore, in view of the original work which the author has prosecuted during the past two years, the results of which are given in this paper, award (*sic*) to the essayist the two hundred dollars appropriated for this purpose."

The report, at a very full session, was unanimously adopted. At the last session of the same meeting, when nearly all the members had gone home, through some fatuity or misunderstanding the vote was, by the few then present, reconsidered and reversed. This, by the terms of the original resolution and the definite and specific report of the committee to whom was delegated the power to make the award, the Society had no right to do, but to avoid controversy the vote was not questioned.

At the late meeting, the same Section, in its report, reviewed the whole matter, and recommended that the original award be complied with, and the money paid in accordance with the report of its special committee, and this recommendation was unanimously adopted. Tardy justice has thus been done, and the honor of the Society redeemed.

THE MEETING OF THE A. D. A.

A large gathering was not anticipated at Niagara this year, but the number present was considerably in excess of sanguine expectations. The registry showed that about two hundred members and visitors attended. But if the meeting was not equal in point of numbers to that of last year, it excelled it in many particulars. In the first place, there was perfect harmony. The political waves were stilled, and the members present devoted themselves, in the main, to legitimate business. There was none of the wire-pulling which in 1886 converted the Association into a bear pit. The ambition of members really seemed directed toward scientific affairs, and as a consequence there was no lack of good papers, and the discussions at times were quite animated. There is no disputing the fact that in its general tone the meeting was a decided advance upon the most of its predecessors.

Dr. Allport presided with great dignity, and business matters were disposed of with precision and despatch. There was practically no opposition to the officers who were elected, and Dr. Abbott received all the votes for President, except those which might be classed as scattering. Of course Dr. Cushing was re-elected Secretary, and Dr. Keely, Treasurer.

Comparatively few dental exhibits were made. The dealers generally had anticipated a small meeting, and thought there might perhaps be opportunity to sell but few goods. The S. S. White Dental Mfg. Co., the American Dental Mfg. Co., R. S. Williams, C. Ash & Sons, of London, represented by their Mr. Sykes, of New York, were all the dental depots represented. Seabury & Johnson made a magnificent exhibition of their absorbent cotton, Hydronaphthol and other specialties, and there were exhibits of different appliances and methods, perhaps the most interesting being that of Dr. C. C. Carroll, of Meadville, Penn., who successfully demonstrated the casting of aluminum plates. Altogether, the meeting was one of interest and profit.

PUS FORMATION.

The paper by Dr. Black, in this number, although long, will well repay careful study. Let no practicing dentist imagine that it is too "scientific" for his comprehension, for he will find it as practical as a potato, and quite as full of nutriment. He may not be a believer in the bacterian origin of disease, but as an intelligent man he should be able to comprehend its theories, and to this end the paper will lend great assistance. He may be quite ignorant of the whole subject, and in this case he should read it a number of times. Those who desire to know anything concerning the septic conditions which it is so large a portion of a dentist's duties to combat, will give the paper earnest study, for here is one consistent explanation of the phenomena presented by pus under varying circumstances.

IT CAN WAIT.

The respected editor of the *Journal of the American Medical Association*, in the number for Aug. 6th, reviews the editorial in our last number upon "Medical Recognition," and indulges in some comments upon it. We have very positive ideas as to who is decidedly "mixed," and in the near future propose to devote a little space to the consideration of the question. But at present there is one duty which should absorb the energies of all of us, and that is the labor of making of the International Congress meeting a grand success. Until that is passed, controversies are not in good taste.

IN EXTENUATION.

It is a source of regret that a report of the June clinic of the Chicago Dental Club is unavoidably crowded out of this number. Other reports and articles had precedence. An excellent paper by Dr. W. H. Trueman, read before the Central Dental Association of Northern New Jersey, with the discussion upon it, is also put over a month. We cannot accomplish the impossible, and ask that our good friends will extend forbearance.

TO JUNIOR DENTISTS.

We have received a number of letters asking that the series of letters to students and young dentists be revived. We recognize the fact that there are many of our readers who need and desire elementary information, and it is our purpose to comply with the requests made at as early a date as is practicable.

Current News and Opinion.

IS DENTISTRY A SPECIALTY IN MEDICINE?

The relations of dentists to doctors have been the subject of much discussion. Dentistry has grown up from an unsavory beginning; so has surgery. No dentist was ever lower than the barber surgeons of England. The same might be said of most specialties. Hence, dentistry should not be denied recognition in the medical profession because of its lowly origin. The question arises, has it so developed as to merit a place by the side of other specialties? It is well known that for several years some medical schools have undertaken to give the degree of M. D. to such dental students as added to their special dental training a certain culture in the medical sciences. Apparently, with each year the sentiment has grown in the profession and among the better dentists that they were practically one.

Hence, at the late meeting of the American Medical Association, it was voted to recognize such dentists as graduate at dental schools requiring preliminary requirements of a fair literary education, and which compel a three years' training in a first-class college. These requirements are higher than those of most medical colleges, those admitting all who apply, and graduating them after attendance upon a portion of two courses of lectures. Hence, such dental schools as comply with the prescribed requirements will be better trained than the average of the average medical college. This is good for the dentists, but bad for the doctors. It is not too high for good dentists, but it is far too low for good doctors. The INDEPENDENT PRACTITIONER, speaking for progressive dentists, says that the proposition of the American Medical Association is fair. But it says that only a portion of the dental schools comply with it. (Here follows a quotation of a part of the editorial in this Journal for July: "The late action of the American Medical Association.")

It is worthy of note that all here said respecting the dental colleges and dental students applies with equal force to the medical schools and medical students. Hence, dentists should not be denied recognition by the medical profession for possessing the same defects and vices which prevail among doctors.

As a matter of fact, the time is rapidly approaching when the dentists will be quite as much doctors in all regards as are most specialists. There is, under such circumstances, no reason why all should not be called doctors.

More knowledge of dentistry by physicians, and more knowledge of medicine by dentists, would result in mutual benefits.—*American Lancet.*

NEW ENGLAND DENTAL SOCIETY.

The New England Dental Society will hold its 25th annual meeting in Boston, on the 5th, 6th and 7th of October. This is the largest and oldest dental society in New England, and next to the largest in the country. It is intended to make the meeting a celebration of our Silver Wedding. Many eminent men in our profession throughout the country have promised to attend and make the occasion successful. A complete programme of the meeting will be sent to all signifying their intention of attending, at a later date.

A. M. DUDLEY, Secretary.

PENNSYLVANIA STATE DENTAL SOCIETY.

The Pennsylvania State Dental Society convened at Glenn Summit, July 26 to 28, 1887, inclusive, profitably, no doubt, to all in attendance.

The following officers were elected for the ensuing year :

President—W. F. Fundenberg.

First Vice-President—W. E. Van Arsdel.

Second Vice-President—Louis Jack.

Recording Secretary—W. B. Miller.

Assistant Secretary—J. R. C. Ward.

Treasurer—L. Ashley Faught.

Chairman Ex. Com.—S. H. Guilford.

The next annual meeting will be held at Philadelphia, Pa., first Tuesday in June, 1888. R. K. Filbert, Cor. Sec.

CONNECTICUT VALLEY DENTAL SOCIETY.

The annual meeting of the Connecticut Valley Dental Society will be held at "Hotel Warwick," Springfield, Mass., Thursday and Friday, Oct. 28 and 29. A cordial invitation is extended to the profession.

Geo. A. Maxfield, D. D. S., Secretary.

The New York Medical Society has been trying for three years to have put on the statute books a measure requiring the licensing and registering of physicians. All the schools of medicine finally united this year on the bill, which has just become a law. It restricts the list of authorized practicing physicians to those already regularly licensed and over 21 years of age. Hereafter, those who shall be admitted to practice will be confined, first, to those who shall have been graduated from an incorporated medical school or college with the degree of Doctor of Medicine; second, to those who shall have received this degree from the Regents of the University of the State of New York; third, to graduates of incorporated medical institutions in other States and foreign countries, which shall have been approved by the institutions in this State. The county clerk of each county shall keep a registry book, in which every physician must register according to a prescribed formula. No person convicted of committing a felony shall be allowed to practice. The penalty for violating the law is $50 fine for the first offense and $100 fine or 100 days' imprisonment, or both, for each succeeding offense. The county medical societies are authorized to prosecute any offenders.

Dr. Flavius Searle, of Springfield, Mass., is about to enter upon his jubilee year, having been in practice a half century. What a retrospect is his—what wondrous changes has he witnessed! And now after fifty years in dentistry, his interest in professional advancement is as intense, his desire for knowledge as keen, as when he first set out upon his exceedingly honorable career. How many men for fifty years can keep pace with the progress of the world, especially in a profession that is making such advances as is dentistry?

A CASE HAVING ARISEN in which a legally qualified practitioner of medicine was prosecuted by the New York State Dental Society for practicing dentistry illegally, Mr. Justice Gorman decided that the medical qualification carried with it the right to practice dentistry. It was urged in behalf of the prosecution that the defendant was a graduate of the Eclectic Medical College, and that he had been convicted of malpractice; but it was shown that, whatever the college might be, it was legally empowered to grant the medical degree, carrying with it the license to practice, and that, as regards the conviction for malpractice, the defendant said that he had been pardoned by the Governor. The judge promised to dismiss the complaint if the defendant brought proof of his having been pardoned —*New York Medical Journal.*

It should be understood that the New York State dental law provides that a diploma from a reputable college, *recognized as such by the Dental Society of the State of New York,* shall be sufficient authority under the law for dental practice, no matter whether it be a dental or medical degree.—*Editor I. P.*

A. ZUCKERMANN (*Centralbl. f. Bacteriologie u. Parasitenkunde*, No. 17,) relates his experiments upon suppuration, which have led him to these conclusions: That no chemical, mechanical, or thermic influences can excite suppuration in tissues wholly free from microbes; and in cases where these causes apparently act, it is probably through some pyogenic microbe. Substances chemically pure may be mycotically impure; thus some disinfectants are not always free from microbes. The varieties of microbe known to cause suppuration are *Staphylococcus Pyogenes Aureus, Albus,* and *Citreus; Streptococcus Pyogenes;* and in fœtid abscesses, *Bacillus Pyogenes Fœtidus.* Inoculations with Staphylococcus and Streptococcus produce fatal results if injected in large amount into animals, or lead to suppuration if death do not occur. The pyogenic microbes must have a very general distribution in nature; they may enter the body through the air-passages, the intestinal canal, and especially the skin, and by means of small wounds, or the orifices of the cutaneous glands. Staphylococcus is more frequent than the Streptococcus pyogenes.

FEW PERSONS have an adequate idea of the immense extent of some of the Western States and Territories. Take Texas for instance. A straight line drawn across the State at its greatest diameter is nearly as long as from New Orleans to Chicago. Place the entire population of the United States (fifty millions) in Texas, and the State would not then be as densely populated as Germany. If the vast agricultural resources of the State were fully developed, it could easily support all that great population. Montana, Idaho, Dakota and New Mexico are almost as large. Of the twenty-two States and Territories west of the Mississippi, only three are as small as all New England. These facts have no direct relation to dentistry, but they suggest possibilities to the young men who are about to crowd into the cities to practice dentistry. Perhaps some of the "old settlers," who are alarmed about the encroachment of dental colleges, could find more elbow room out west.—*Cin. Med. and Dental Journal.*

The Luella Mabbitt disappearance case has caused much excitement in Indiana. At the meeting of the Indiana State Dental Society, the skull of a person which, it is claimed, is that of the missing girl, for whose murder her lover is being tried, was produced, and without any knowledge of its history was submitted to the critical examination of the dentists, who were asked to fill out and sign blank certificates, giving their opinion as to the probable age of the person. The average of thirty-one opinions was forty-eight and one-half years. Seventeen pronounced it a male, one a female, while the others did not express an opinion.

The Review says that since that time the coroner and three doctors have certified that the body was that of a female, and sufficient of the anatomy has been produced in court to positively establish that they are correct. Even dentists may be mistaken, and they should exercise great care about expressing expert opinions in such grave cases.

Dr. M. Vogel, writing upon the subject of cleansing the hands, says that he has noticed that coppersmiths, tinsmiths, etc., whose hands become covered with a dirt from working in oxides and acids that cannot be removed by ordinary means, first rub their hands with warm oil, and when this has thoroughly penetrated, rub them with powdered borax. Subsequent washing with soap and water makes the hands perfectly clean. He advises those who have to use carbolic acid to go through the process above described first, and claims that in this way, (1) disinfection is made more thorough; (2) the hands are made purer than it is possible to make them with soap alone; (3) the hands remain soft and free from troublesome, rough epidermic scales, and the odor of carbolic acid is destroyed; (4) the uncomfortable anæsthesia after washing with carbolic acid is avoided.—*Allgemiene Med. Central-Zeitung.*

Some of the receptions and entertainments to be given in connection with the International Medical Congress meeting in Washington are as follows: Monday evening, Conversazione at U. S. Pension Hall, 8 to 11.

Tuesday evening, visit to the Corcoran Art Gallery.

Wednesday evening, reception by the citizens of Washington, from 8 to 12.

Thursday evening, General Reception and Buffet Banquet at United States Pension Hall, from 8 to 11.

Saturday afternoon, visit to Mount Vernon.

An excursion to Niagara Falls will also be tendered the foreign members of the Congress, with their ladies. The exact time of starting is yet to be announced.

The First Announcement of the Dental Department of Columbian University, at Washington, has been issued. The professors, aside from the occupants of medical chairs, are: Dental Prosthetics—J. Hall Lewis, D. D. S.; Operative Dentistry—H. C. Thompson, D. D. S.; Demonstrators—H. B. Noble, Jr., D D. S.; Mark F. Finley, D. D. S.

Attendance upon two courses of five months each will be essential for graduation. The term will begin October 1st prox.

In this number will be found the advertisement of Dr. D. B. Freeman's Double Loop Spring Clamp, and his Disk Cutters. We are always glad to present to the profession any new device which promises to be useful, and therefore we call attention to these articles. The Spring Clamp we have been using for some weeks, and have found that in filling buccal cavities in the anterior teeth it is an essential. From the very first operation we derived benefit sufficient to pay for a set of the clamps. The device is so simple and so obviously useful that it is but necessary to call attention to it.

For a number of years we have been using a disk-cutter not unlike that of Dr. Freeman, and with it the office girl has constantly kept the operating case supplied, without trouble and almost without expense. But Dr. Stevens' Cutter was not placed regularly on the market, and few knew where to obtain them. A good disk cutter is something more than a convenience, and those made from Dr. Freeman's patterns are excellent.

The American Dental Association at its late meeting elected the following named gentlemen to serve as officers for the ensuing year.

President—Frank Abbott, New York.

First Vice-President—C. R. Butler, Cleveland.

Second Vice-President—T. S. Waters, Baltimore.

Recording Secretary—Geo. H. Cushing, Chicago.

Corresponding Secretary—Fred A. Levy, Orange, N. J.

Treasurer—Geo. W. Keeley, Oxford, Ohio.

Members of Executive Committee—L. D. Shepard, Boston; A. W. Harlan, Chicago; A. O. Hunt, Iowa City.

Archives of Pediatrics relates a case in which an infant of two months of age died after having been for some time subject to terrible abdominal pains. An autopsy revealed that through a small opening in the diaphragm all the large intestines, as far as the cæcum, had passed into the left side of the thorax, filling it full. The left lung had never been expanded, but lay flattened against the spine. The heart lay underneath the border of the right lung, and the spleen was depressed out of position. The extraordinary severity of the abdominal pain was due to the efforts of the bowels to force their contents through the construction produced by the narrow opening in the diaphragm.

One of the greatest living authorities upon buccal bacteriology, Dr. Miller, finds that by using the following mixture he can completely sterilize the mouth, cavities in carious teeth, etc. Thymol, 4 grains; benzoic acid, 45 grains; tincture eucalyptus, 3½ fluid drachms; water, 25 fluid ounces. The mouth is to be well rinsed with the mixture, especially just before going to bed, since most of the damage by fermentative and putrefactive processes in the mouth is done at night, during sleep.—*Brit. Journal Dental Science.*

To prevent the sticking together of postage stamps that are carried in the pocket or memorandum book, rub the sticky side over the hair. The oil of the hair coats the mucilage and prevents it from sticking.

Judge C. C. Fuller, of Mecosta County, in the case of State of Michigan vs. Vanimmans, decided, when a physician refused to testify on the ground that the evidence would be expert testimony: "After many years' study and observation I decide that a physician's knowledge is his stock in trade, his capital, and we have no more right to take it without extra compensation than we have to take provisions from a grocery, without pay, to feed the jury. The court rules that the witness is not compelled to testify."

In Scribner's Magazine for September will appear two essays which will attract general attention and be especially interesting to professors, scholars and students of literature. One is a very carefully elaborated paper on "The Development of the American University," by Professor George T. Ladd, of Yale, who presents a scheme for primary, secondary, and higher education. The other is an essay by Professor Adams Sherman Hill, of Harvard, on "English in Newspapers and Novels."

Dr. Geo. H. Rohe, is about to assume the editorialship of a new quarterly journal, devoted to the scientific and practical consideration of questions in the domain of medical and sanitary climatology. It will be called *The Climatologist*, and will be issued from Baltimore. Dr. Rohé has an established reputation as a writer upon preventive medicine, and will bring to the discharge of his duties a thorough knowledge of the subjects to which the new journal will be devoted.

Horsford's acid phosphate is a remedy of which all have heard. During the heated term of the past two months we have formed a personal acquaintance with it, and have no fear of saying too much in its favor. When made into a kind of lemonade, it furnishes a refreshing, cooling drink, that is exceedingly grateful. But it is as a remedy for certain gastric disturbances that we have found it most useful, and to its merits we can bear personal testimony.

The Saguenay Pilgrims from the Montreal meeting of the Connecticut Valley Dental Society, while on their trip, bought and presented to Dr. Lovejoy a beautiful ice-pitcher, suitably inscribed, as a mark of appreciation of his indefatigable labors in behalf of the meeting. Drs. Andres, Bazin, Beers, Trestler and many others, received no ice-pitchers, simply because there were not enough to go round.

There are few, if any cities of its size, that can boast so many medical journals of influence as Detroit. *The Medical Age*, *The American Lancet* and *The Therapeutic Gazette* are among the foremost of American medical publications, and each boasts of a large and constantly increasing subscription list. Besides these three, *The Index Medicus* and *The Druggists' Bulletin* are published by Geo. S. Davis.

Let it not be forgotten that the dentists of Western New York will have a reunion in Buffalo, October 25th. The Sixth, Seventh and Eighth District Societies will hold a union meeting, and the Executive Committee is planning things unutterable.

Wm. Wood & Co. make a very courteous offer that is open to any medical journal in the world. They will have a stenographic report made of all the proceedings of the International Medical Congress, and will send a copy to any journal that shall make application for it. This is not only an evidence of enterprise, but it is an instance of journalistic courtesy that is seldon paralleled.

Through a curious mental confusion, the brothers W. A. and J. H. Spaulding have exchanged identities in our mind, and some annoying blunders have been the consequence. It was to Dr. W. A. Spaulding, of Minneapolis, that the contribution to the Waite testimonial fund should have been credited Dr. J. H. Spaulding is practicing in Paris, France.

Dr. L. P. Haskell, of Chicago, lately met with an accident which cost him the sight of one of his eyes. His many friends will be glad to know that the vision of the other eye is unaffected, but for a man who has passed the meridian of life to become habituated to a new method of vision is a serious undertaking.

In Germany almost the only anæsthetic used is chloroform. Billroth uses a mixture of chloroform and ether. The German surgeons regard all anæsthetics as dangerous, chloroform no more so than others, and they consequently choose it on account of its practical advantages.

A recent estimate shows that about one-fourth the population of New York, Boston, and London receives free treatment at the medical clinics and hospitals; in Philadelphia one-fifth, and in Liverpool one-half the population.

Dr. Chisholm, according to a medical exchange, thinks that chloroform was made for the skilled, and ether for the blunderers to use. Ether is the dull knife for the boy, while chloroform is the sharp razor for the man.

The chief of police of Chicago has issued an order giving to the carriages of physicians precedence at the bridges, classing them with mail and patrol wagons, ambulances and fire apparatus.

The Association of American Medical Editors will tender a banquet to the foreign editors and other distinguished guests at Washington, Wednesday evening, Sept. 5, 1887.

If any first-class dentist desires to secure the leading practice in Constantinople, he should correspond with Dr. P. L. Foote, of Poughkeepsie, N. Y.

Fairmont, Ind., has a natural gas well, lately opened, that flows nearly 12,000,000 cubic feet per day.

The United States has twice as many doctors in proportion to its population as has England.

A doctor may understand only one language, and yet know several tongues.

The practitioner who is jealous of a rival acknowledges his own inferiority.

A PHARMACEUTICAL SPECIALTY FOR DENTISTS.

LISTERINE.

FORMULA.—Listerine is the essential antiseptic constituent of Thyme, Eucalyptus, Baptisia, Gaultheria and Mentha Arvensis, in combination. Each fluid drachm also contains two grains of refined and purified Benzo-boracic Acid.

DOSE.—Internally: One teaspoonful three or more times a day (as indicated), either full strength or diluted with water, or in combination with other drugs. As a local application to ulcers, wounds and abscesses, or as a gargle, mouth-wash, inhalant or injection, it can be used ad libitum, diluted as necessary for varied conditions.

Antiseptic, Prophylactic, Deodorant, Non-Toxic, Non-Irritant, Non-Escharotic, Absolutely Safe, Agreeable, Scientific, and Strictly Professional.

LISTERINE is a well-proven antiseptic agent — an antizymotic — especially adapted to internal use and to make and maintain surgical cleanliness — asepsis — in the treatment of all parts of the human body, whether by spray, irrigation, atomization, or simple local application, and therefore characterized by its particular adaptability to the field of preventive medicine — individual prophylaxis,

AND THE REQUIREMENTS OF GENERAL

DENTAL ✣ PRACTICE

LISTERINE IS A

Perfect Tooth and Mouth Wash,

NON-SECRET AND PROFESSIONAL,

And therefore has received the Highest Recognition as the Best General Antiseptic for a

DENTIST'S PRESCRIPTION.

Dentists interested in LISTERINE will please send us their address, and receive by return mail, post-paid, our new and complete pamphlet of 36 quarto pages, embodying

A TABULATED EXHIBIT of the Action of LISTERINE upon Inert Laboratory Compounds;

FULL AND EXHAUSTIVE REPORTS and Clinical Observations from all sources, both Medical and Dental, comfirming the utility of LISTERINE as a general Antiseptic for both Internal and External use; and particularly

MICROSCOPIC OBSERVATIONS, showing the comparative value and availability of various Antiseptics in the treatment of Diseases of the Oral Cavity, by W. D. Miller, A, B., Ph. D., D. D. S., Prof. of Operative and Clinical Dentistry, University of Berlin, from whose deductions LISTERINE appears to be the most acceptable prophylactic for the care and preservation of the teeth.

LAMBERT PHARMACAL COMPANY,

116 OLIVE STREET, ST. LOUIS, MO.

DR. ROBERT S. IVY,

Mechanical * Dentist

1423 Chestnut Street,

PHILADELPHIA.

REFERENCES:

Professor T. C. Stellwagen, 1627 Chestnut St., Phila.
Professor J. E. Garretson, (for oral surgical appliances,) 1537 Chestnut St., Phila.
Dr. M. H. Cryer, 1423 Chestnut St., Phila., and others.

4-7-AN-⅙.

Announcement!

In reply to numerous inquiries in regard to my MECHANICAL MALLET and ENGINE (foot and suspension), that have been in successful operation for the past two years, I beg to state they will be placed upon the market in the autumn or early winter. Orders may be sent in for same, and they will be filled in rotation, as received.

H. C. REGISTER, M. D., D. D. S.,

1907 Chestnut Street,

8-7-¼-¼. PHILADELPHIA.

TO MACKINAC!

SUMMER TOURS.

Palace Steamers. *Low Rates.*

Four Trips per Week Between

DETROIT, MACKINAC ISLAND,

St. Ignace, Cheboygan, Alpena, Harrisville, Oscoda, Sand Beach, Port Huron, St. Clair, Oakland House, Marine City.

Every Week Day Between

DETROIT AND CLEVELAND.

Special Sunday Trips during July & August.

OUR ILLUSTRATED PAMPHLETS,

Rates and Excursion Tickets will be furnished by your Ticket Agent, or address

E. B. WHITCOMB, Gen'l Pass. Agent.

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A DAILY EDITION.

During the six days' session of the Ninth International Medical Congress THE MEDICAL REGISTER of Philadelphia will be issued daily. It will be full size, and will contain a complete report of the General Session and all of the Sections. It will at once be seen that this will offer, to those who cannot attend the Congress, a chance to have a full report of the proceedings daily. We will furnish this edition for 50 cents for the six days, postage prepaid, to any address, or any one subscribing to THE MEDICAL REGISTER for one year ($3.00 in advance), will receive the daily edition free.

Address all orders to

THE MEDICAL REGISTER CO.,

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5-7-⅓-X. PHILADELPHIA, PA.

HIGHEST AWARDS OF MEDALS AND DIPLOMAS OVER ALL AMERICAN AND FOREIGN COMPETITORS,

AT MORE THAN THIRTY

INTERNATIONAL, STATE AND LOCAL EXPOSITIONS.

SEABURY & JOHNSON,

Beg to call attention to the articles manufactured by them especially adapted for dental use.

OUR DENTAL LINT

Is made with great care, by perfected machinery, of which process WE ARE THE SOLE OWNERS AND OPERATORS IN THIS COUNTRY, and our product is guaranteed to be fluffier and lighter than any other make.

DENTAL ABSORBENT COTTONS.

Borated, Salicylated, Styptic and all other Medications. Perfect quality highly absorbent, superior to all competitive brands.

RUBBER DAMS, LIGHT and HEAVY

Order of dealers or directly from us.

We would also direct your attention to HYDRONAPHTHOL, the new antiseptic and disinfectant. It is odorless, non-poisonous, non-corrosive and tasteless. Is freely soluble in alcohol, ether, benzol, glycerine and fixed oils; twelve times as efficient as carbolic acid and three times as potent as salicylic acid. It is anæsthetic and soothing in its local effects, hence is especially recommended for treating sensitive dental cavities, abscesses, etc., etc. HYDRONAPHTHOL can be had incorporated in our Absorbent Cotton bandages, Jute, or any desired Surgical Dressing that can be rendered antiseptic.

SEABURY & JOHNSON,

21 Platt Street. NEW YORK.

Proprietors of the SEABURY PHARMACAL LABORATORIES,

Manufacturers of India-Rubber Pharmacopœial and Surgical Plasters, Antiseptic Dressings and Absorbents, Bandages, Oiled Silk and Muslin, and Surgical Dressings of all Descriptions.

GEO. J. SEABURY, President. J. M. PETERS, Treasurer. ROBERT J. SEABURY, Secretary.

CLAUDIUS ASH & SONS,

LONDON, ENGLAND.

We have established an office for the sale of our

MINERAL TEETH

Dental Rubbers, Forceps, Etc.,

AT

No. 30 East 14th Street,

NEW YORK CITY,

And have in stock a full assortment of

FLAT TEETH for Metal Plate, and Crown and Bridge Work.
VULCANITE TEETH.
TUBE TEETH for Metal Plate and Pivoting.
Pinless, Dovetail and Open Crown for Vulcanite.

We desire to draw attention to the following: Our Improved Pink, New Pink, Whalebone, Flexible Base, Dark Elastic, Orange, Dark Brown and Improved Black Rubbers.

Phosphate and Rock Cement.
Sullivan's and Stewart's Copper Amalgam.
Ladmore Brunton Clamp, Key and Matrices.
Baldock's Improved Nerve Paste.
Stubb's Separating Files and Tools.
Jacob's Gutta Percha Stopping.
Steuts' Modelling Composition, Amalgams, Forceps, Pivoting and Filling Instruments, Impression Trays, Barbed Nerve Extractors, Corundum, etc., etc.

Catalogues mailed on application.

Our MINERAL TEETH

Possess the following desirable qualities.

1. NATURAL FORMS—

   In great variety and of various sizes and lengths.

2. COLOURS—

   Ranging from very light to very dark shades, and closely resembling the various colours of the human teeth.

3. TEXTURE—

   Non-porous, so that they can be *ground* and *polished* to suit particular cases, therefore being well adapted for Bridge work.

4. STRENGTH—

   Possessing unusual strength on account of their fine and close texture.

5. SOLDERING—

   Bearing in an extraordinary manner the sudden transitions of temperature, so that they can be *soldered without cracking*. Our representative received corroborative evidence of this fact from many of the most prominent dentists in the United States.

CAUTION—

Some unprincipled dealers in the United States are selling imitations of our pinless teeth as our make. Dentists can easily detect the imitation, from the very rough finish and inferior coloring of these teeth.

Our DENTAL RUBBERS

Are much esteemed for their *purity, strength and solidity.*

Professor Attfield, F. C. S., who has put our Dental Rubbers to severe tests in order to settle the question of such a possibility, thus concludes his exhaustive report upon them: "I am of opinion that the vulcanite teeth-plates made from your Rubbers are practically unaffected by saliva or by any substance which ever gains access to the mouth; and, in short, that the pink and red vulcanite gums and palates are absolutely harmless."

CLAUDIUS ASH & SONS.

30 East 14th St., New York City.

"ACME GOLD FOIL."

ABSOLUTELY PURE GOLD.

After twenty years as a practical Gold Beater and Refiner of Gold and Silver, and manufacturer of Gold Leaf in various shades and qualities, I am in position to state that there is no purer quality of Gold Foil manufactured, no matter how great the reputation of others, whether domestic or foreign.

Cylinders $30.00 per oz.; ⅛ oz. $3.75. Acme Cylinders are made from our Acme Soft Foil, which is absolutely pure. The name Acme is given to this Gold for the reason that it is as pure as it is possible for chemical agencies or human hands to produce.

Acme Soft Foil, $28.00 per oz.; $3.50 per book of ⅛ oz.

Crystal Surface, or Corrugated Foil, softest working Foil known, $28.00 per oz.; $3.50 per book of ⅛ oz.

Acme Folded Foil, a convenient substitute for Cohesive Foil, easy to handle and anneal $28.00 per oz.; $3.50 per ⅛ oz.

Appended a few of numerous Testimonials:

BROOKLYN, N. Y., Nov. 21, 1885.

I think Henry's Gold the finest, *without any exception*, I ever used.

FRANK P. ABBOTT.

ATHENÆUM, BROOKLYN, N. Y., Sept. 10, 1875.

MR. HENRY,

Will you have your agent call on me. I had a book (⅛ oz.) of your gold a long time since, and when the agent last called I told him I didn't know whether I liked it or not. Since then I found a package unopened, have used it and like it much.

Truly, A. N. CHAPMAN.

NEW YORK, Aug. 22, 1885.

MR. T. J. HENRY,

Dear Sir,—Your agent left one book of your Corrugated Gold Foil for trial, and I would not be doing you justice without saying that it works equal to any Gold I have ever used. Please send agent with a further supply and oblige,

Yours, respectfully,

V. VAN VLECK, M. D.
284 6th Ave.

One of the many testimonials we receive almost every hour in the day:

NEW YORK, Sat., Nov 14, 1885.

Dear Sir,—Please send your man with Foil.

Yours truly, N. M. BECKWITH,
21 West 37th St.

Gold will be sent free of cost to any part of the United States or Canada. Remittances must accompany all orders.

ADDRESS,

T. J. HENRY, GOLD LEAF FACTORY,
No. 16 Centre St., N. Y.

ESTABLISHED 1875.

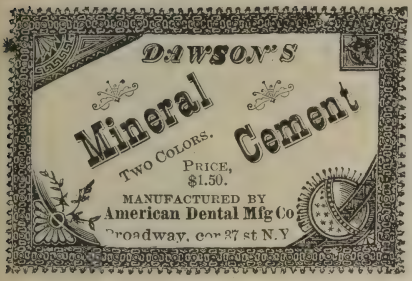
P. S.—Dental Depots supplied at a liberal discount. Special Brands of Gold manufactured according to orders.

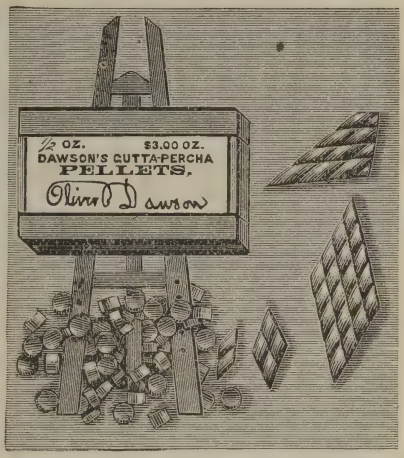
Dawson's Cement

QUALITY — TRADE MARK — AMERICAN DENTAL MFG. CO. — NEW YORK — RELIABILITY

DAWSON'S IMPROVED

Gutta-Percha Filling.





THIS CEMENT HAS NO EQUAL FOR ATTACHING CROWNS AND FILLING CARIOUS TEETH.

We are constantly receiving WORDS AND LETTERS OF PRAISE from the Profession, commending the* Superiority *of these Filling Materials.

Fine Instruments and Filling Materials

OUR SPECIALTIES.

AMERICAN DENTAL MANUF'G CO,

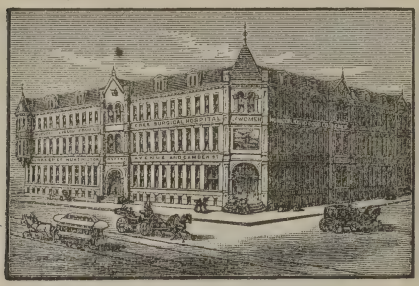
Broadway, cor. 37th Street, New York.

THE VALUE OF MURDOCK'S LIQUID FOOD IS RECOGNIZED IN ALL COUNTRIES, AND IS INDORSED BY ALL NATIONAL MEDICAL SOCIETIES THAT HAVE INVESTIGATED ITS VALUE.

There never was an essay read before any Medical Society on Raw Food Extracts, except on Murdock's Liquid Food, and counterfeit manufacturers of Extracts have published many of our essays to show the value of their counterfeits.

Send for Essay and DISCUSSION before the British Medical Association at Brighton England, 1886, (Essay) by the Vice-President of The American Medical Association and others on the value of Murdock's Liquid Food over all Foods and Extracts known, it being the *only* Raw Condensed Food, free from insoluble matter.

Also essay read before the American Medical Association at Richmond, Virginia, and Washington, D. C.



Its value was recognized by the profession from results obtained in the Free Hospitals that have been established and supported by our Mr. A. L. Murdock during the last four years. They now equal

140 FREE BEDS.

and contain 38,000 feet of floor.

Our Liquid Food can be retained by the weakest stomach. Four tablespoonfuls daily will make eight per cent. new blood weekly. When used for infants, never change their food, but add five or more drops of Liquid Food at each feeding, and their lost or needed vitality will be restored in less than thirty days.

Send for the Report of the Chairman of the Section of Obstetrics of the American Institute of Homœopathy, read at Saratoga at the annual meeting of 1886.

Circulars were sent by him to all the Physicians in the United States, asking what their experience was with Murdock's Liquid Food in its use for infants under, as well as over, one year old.

Then what results, with all the different Milk preparations, Grain Foods, Peptonoid Foods and Beef Extracts, compared with Murdock's Liquid Food.

The Returns show that it is the Standard Food and Extract, as the percentage of lives restored was the largest when used.

We extract from the report. After calling attention to the fact that one-quarter of the homœopathic profession are accustomed frequently to prescribe this food for children less than a year old, as well as over, he remarks—

"It is singularly adapted to scrofulous, syphilitic, and tubercular constitutions, its life-restoring power manifesting itself in each with a relative clearness and power corresponding to the order of enumeration. For fair-haired children who are inclined to grow fleshy it is more symptomatically recommended, while Duncan's *acid* babies find it particularly useful. Accordingly it is chiefly employed for marasmus and anæmic conditions resulting either from non-assimilation of food or from simple summer complaints. Should a child vomit all milk food and suffer synchronously with diarrhœa or dysentery, the demand for this food is emphatic and unmistakable; also in general irritability of the stomach, particularly if there be sour-smelling diarrhœa, the food passing through undigested. For the prematurely born it stands pre-eminent. For those 'weak and debilitated from any cause, Murdock's Food is probably the best in the world.' Should any indication of cerebral hyperæmia appear, the quantity of food must be diminished; so, too, if after its protracted use, vomiting and diarrhœa ensue, the child has been overfed. *Should the taste or odor of any given bottle chance to be disagreeable, add water until they disappear, and let the purchaser congratulate himself upon getting more nutriment than he paid for.* When given in combination with milk in cases of indigestion, the quantity of milk should be diminished until all curds disappear from the stool, the quantity of Food, of course, being proportionately increased."

The Surgical Staff at Murdock's Free Hospital for Women are in daily attendance, except Saturdays, to examine patients and assign beds. **EVERY BED FREE.**

Our Free Surgical Hospital for Women, located on Huntington avenue, above West Chester park, contains fifty (50) beds, in charge of a staff of five surgeons, members of the Massachusetts Medical Society.

Our Free Surgical Hospital for Women, located on Gainsborough street, corner of Huntington avenue, contains 50 beds, in charge of a staff of five surgeons, members of the Massachusetts Homœopathic Medical Society.

Our Free Home for Homeless Boys contains 40 beds, and is located at 11 to 21 Causeway street. Many of these boys suffer from Scrofula, Eczema, and other skin diseases, which yield quickly by the use of our Liquid Food.

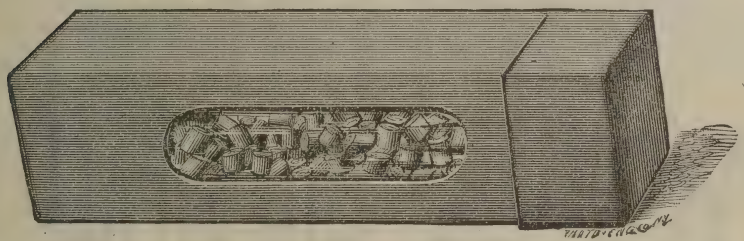
From the fact that no two beeves or sheep are alike is the reason of our different brands being different in flavor. All brands are made by the same formula. The letter represents the day of make, and the figure the tank.

If richer, it is stronger in smell and flavor, and will bear a greater reduction. It cannot be reduced so low but it will be superior to all other preparations in treating chronic cases.

If you cannot obtain Murdock's Liquid Food from your druggist, we deliver, free of express, 12 oz. for $1 00. Any physician that has not used our Liquid Food, we will deliver free to the Boston express 12 oz.

10-6-00-1 **MURDOCK'S LIQUID FOOD CO., BOSTON.**

EXTRA PLIABLE DECIMAL GOLD ROLLS.



(This Engraving represents a Phial of size 1 of the above designated Gold, inclosed in a Box.)

Gold Foil and Gold Rolls, per 1-10 ounce,	$3.00.	Per ounce,	$28.00
Extra Pliable Decimal Gold Rolls, per 1-10 ounce,	3.50.	Per ½ ounce,	17.00
Untrimmed Foil, per 1-5 ounce book,			5.50
Ideal Cement, per package, with Pigments,			1.00
Rowan's Ideal Alloy, No. 1, per 1 oz. $5.00, 2 ozs. $9.00, 4 ozs.			16.00
Rowan's Ideal Alloy, No. 2, per 1 oz. $3.00, 2 ozs. $5.50, 4 ozs.,			10.00
Tin Foil (our make), very tough, per book,			.50

Try some of our "Ideal" Cement Filling and "Ideal" Alloy.

Appended are testimonials for our preparations of Gold from well-known gentlemen:

I have used the Rolled Gold of Edward Rowan & Co., and like it very much. I prefer high numbers—30, 60 and 120—for facility of adaptation to walls of cavities, capacity to bear high annealing and making solid work, I know no superior make.

W. H. ATKINSON,
October 23, 1882. 41 E. 9th Street, N. Y.

271 N. Eutaw Street. BALTIMORE, Md., June 5th, 1883.

GENTLEMEN—I have used nearly all of the last ounce of your "Extra Cohesive" Decimal Gold Foil No. 4, and it affords me pleasure to inform you that it has *proved* to be a *first-class article* in every respect. It is *cohesive* and *tough* in the *highest degree*, yet possessing *less harshness* than is usually found in cohesive foils. I cheerfully thus refer to it, and so long as you continue to make such foil, I want nothing better. Very respectfully,

JAS. H. HARRIS, M. D., D. D. S.

No. 100 Boylston Street. BOSTON, MASS., June 30, 1883.

SIRS—I have used your Rolled Gold for several years. When I wish to use *cohesive* gold, I prefer your No. 30 Rolled to any gold with which I am familiar. It is very tough, soft and cohesive. In short, pleasant and easy to work, and makes a compact, even and finished filling. Yours truly,

L. D. SHEPARD,
Late Professor of Operative Dentistry, Harvard University.

S. H. GUILFORD, A.M., D.D.S., (*Professor of Operative and Prosthetic Dentistry, Phila. Dental College,*) has permitted us to state that he uses and recommends our "Gold Rolls."

DR. H. J. MCKELLOPS, of St. Louis, writes us, under date September 16, 1884, "You may use my name in connection with your Gold with pleasure."

H. C. REGISTER, M. D., D. D. S., of Philadelphia, writes us, "You are permitted to use my name in recommending your Gold, as second to none in the world!"

CHAS. L. STEEL, M. D., D. D. S., of Richmond, Va. (*Demonstrator Operative Dentistry, University of Maryland*). DEAR SIRS—Your last ounce of Gold duly received, and, as usual, works superbly. I have used many makes of Cohesive Foil, but for some time past have confined myself to yours exclusively, as I find none other so near perfection.

A. H. FULLER, M. D., D. D. S. (*Professor of Operative Dentistry, Missouri Dental College*). Should you so desire you may state that I have been using your Gold for the past year or more, and find it first-class in every respect. Shall send you an order in a few days for more.

WM. CARR, M. D., 35 West 46th Street, New York, permits us to state that he endorses our Golds. He uses Nos. 3 and 4 soft; No. 60 Rolled; and Gold Rolls.

EDWARD ROWAN & CO.

No. 1048 Third Avenue, S. W. Corner 62d Street, New York.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

REFERENCES FURNISHED ON REQUEST.

C. A. TIMME & CO. Importers of

CASH MUST ACCOMPANY THE ORDER

COHESIVE, SOFT No.

WOLRAB'S PURE CHEMICALLY

GOLD FOIL

C. A. TIMME & CO.

IMPORTERS of DENTISTS SPECIALTIES

SOLE AGENTS FOR THE U. S.

190 HUDSON ST. HOBOKEN N. J.

CASH OR NOTE ENCLOSED

Foil, $4.00 per ⅛ oz., $15.00 per ½ oz., $30.00 per 1 oz.

On orders of two ounces and more at a time a reduction of 50 cents per ounce will be given.

This gold is made in reference to the HERBST method of filling teeth with the engine. It has also proven a very desirable article for the *mallet* and *hand-pressure*.

We claim it to be superior to any other make for its peculiar *softness*. It easily adapts itself to the walls of the cavity, and when properly manipulated it makes a *solid* and *cohesive filling*. If it is to be used cohesively, a slight *warming over* the flame will have the desired result.

Very good reports have been received from prominent practitioners.

Timme's Imported German Phosphate Cement, per box, $1.00.

CUT OFF LABEL FOR CYLINDER BOXES.

CASH MUST ACCOMPANY THIS ORDER.

D 1/8 oz

WOLRAB'S CELEBRATED GERMAN GOLD.

CHEMICALLY PURE

for the HERBST METHOD

MADE EXPRESSLY of filling TEETH

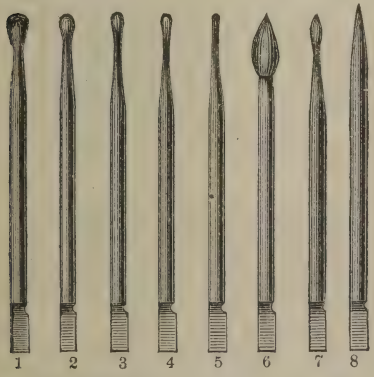
C. A. TIMME & Co. IMPORTERS OF DENTISTS SPECIALTIES

Hudson St. HOBOKEN N.J.

SOLE AGENTS FOR THE U.S.

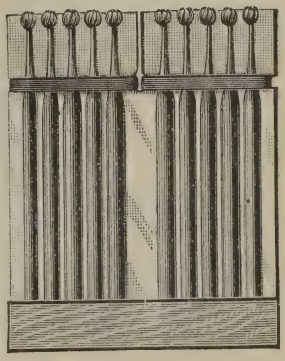
Cylinders, $4.50 per ⅛ oz., $17.00 per ½ oz., $34.00 per 1 oz.

Instruments for the Herbst Method



Made of Agate, per set, - - - - $10.00
The same made of Steel, as shown in the cut, per set, - - - - - 4.00

Imported Burs, Stone Cut.



Unequaled in temper, arranged on wooden cards, per card of ten, - - - - $ 3.00
In boxes of ten cards, - - - - 25.00

3-5-AN-2.

HARDMAN'S WHITE ALLOY

Takes the place of gold for filling front, or any teeth.

PRICE, $3.00 PER OZ.

Test for Color—Place a button of Amalgam, that has one surface polished, into a solution of 40 to 60 grs. of sulphuret of Pottassa in 1 oz. of water. Let remain 24 to 48 hours.

Test for Leakage—Fill a small glass test tube with it, just as you would a cavity in a tooth, and drop it into a bottle containing an alcoholic solution of red aniline.

This Alloy Stands These, and Any Other Tests Deemed Requisite to Perfection.

HARDMAN'S SUPERIOR AMALGAM

Surpasses all others for strength and density of texture. Use it for Crown Work, in Molars, &c.

PRICE REDUCED TO $4.00 PER OZ.

Large discounts on both of these in quantities.

MADE AND FOR SALE BY

J. HARDMAN, MUSCATINE, IOWA.

If your depot does not keep them send to the proprietor for them.

8-4-AN-¼

FIG. 1.

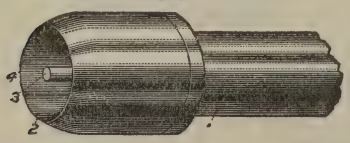


FIG. 1.—1, The Disk Cutter; 2, Its Cutting Edge; 3, Center Punch; 4, A Cork, fitting inside and projecting by the cutting edge, which acts as a spring, throwing off each disk as cut.

DR. DANIEL B. FREEMAN'S DISK CUTTERS

For Cutting and Centering Sandpaper Disks.

These Cutters will enable you to make from 100 to 400 absolutely perfect Disks to the sheet of Shellaced Paper, depending on the size.

Made of steel, in four sizes, viz: ½, ⅝, ¾ and ⅞ inch, and should be used on the end of a soft pine block with the cork in place, which acts as a spring to throw off each disk as cut.

Price of Single Disk Cutter..... $1.50
Price of Set of Four Disk Cutters 5.00

Fig 1.

FIG. 1.—THE CLAMP.

Patent applied for.

Fig. 2.

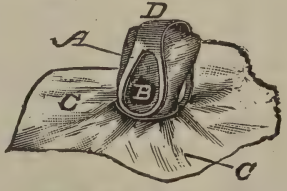


FIG. 2.—A, Tooth; B, Cavity in Tooth; C, Rubber Dam in place; D, Clamp in position holding the Dam, and making visible the cavity of decay.

DR. DANIEL B. FREEMAN'S NEW DOUBLE-LOOP SPRING CLAMP.

This device, when in position, folds the Dam over and beneath the gingival border, holds it in place, makes visible, and keeps dry, labial and lingual cavities beneath the gingivæ, and greatly facilitates impacting the gold. It has no equal as a helper in this class of operations. It is reversable and applied without forceps. Made of best steel in three sizes, applicable to all incisor, cuspid and bicuspid teeth.

Price, per set of three, Nickel plated $2.00
Price, per single Clamp, " " 1.00

DR. DANIEL B. FREEMAN,

9-7-00-¼. **16 Aberdeen St., Chicago, Ills.**

E. KEARSING'S

COHESIVE AND SOFT

GOLD FOIL,

Used by many of the prominent dentists in this country and abroad.

——ALSO EXTRA FINE——

TIN FOIL AND AMALGAM.

MR. E. KEARSING, *Dear Sir:*—After having used your gold foil for five years, I can say that it gives me better satisfaction than any other that I have used. For restorations and all work where I greatly depend upon cohesive qualities it never fails.

Yours truly, A. H. SCOFIELD, D. D. S.,
113 W. 47th St., New York City.
September 8, 1884.

MR. E. KEARSING:—After using your gold foil about five years with great satisfaction, I feel that I cannot get along without it. It is especially valuable for small cavities, and for fine work in approximal cases. Respectfully, J. N. FARRAR.

MR. E. KEARSING, *Dear Sir:*—After having used your gold, both soft and cohesive, for nearly five years, I find it has given me entire satisfaction in all cases.

Yours truly, J. BOND LITTIG, D. D. S.,
113 W. 47th St., New York City
September 13, 1884.

Dear Sir:—After using your gold foil almost uninterruptedly for the last six years, I have no hesitation in stating that it stands without a rival for performing what are known as contour operations. It answers equally well for small fillings unannealed when properly manipulated. Very truly, H. C. LONGNECKER.
FLUSHING, L. I., Sept. 11, 1884.

E. KEARSING, ESQ., *Dear Sir:*—In reply to your inquiry about my opinion of the merits of your Gold Foil, I can say frankly, after having had over thirty years' acquaintance with it, that it works and wears beautifully. No gold foil ever had a better endorsement than that given your gold foil by the late Dr. Marshall H. Webb, whose elegant operations live to do honor to him and reward you. Your cohesive foil, No. 4, folded into 32 or 48, is daily giving me great satisfaction, being uniformly impacted from beginning to end of the filling with the Electric Plugger. Yours very truly, E. PARMLY BROWN.

101 HOYT STREET,

P. O. Box 182. BROOKLYN, N. Y.

7-4-AN-½

"THE OLD RELIABLE."

LAWRENCE'S

AMALGAM.

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the Trade should be addressed accordingly.

Price, $3.00 per Ounce. For sale at all respectable Dental Depots.

Manufactured only by

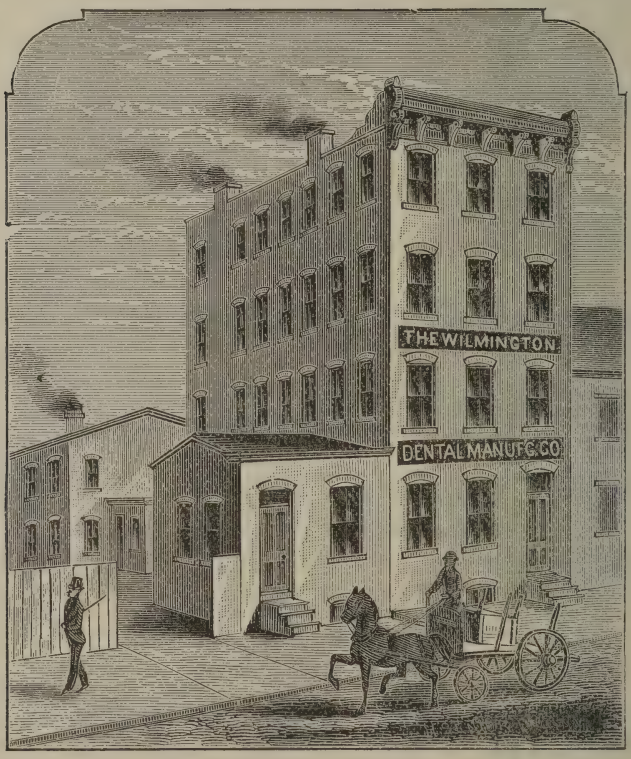
AMBROSE LAWRENCE, M. D., 476 Columbus Avenue, Boston, Mass.

10-4-AN ¼

The Wilmington Dental Manufacturing Co.

MANUFACTURERS OF

ARTIFICIAL TEETH,



Nos. 1010 and 1012 KING STREET,

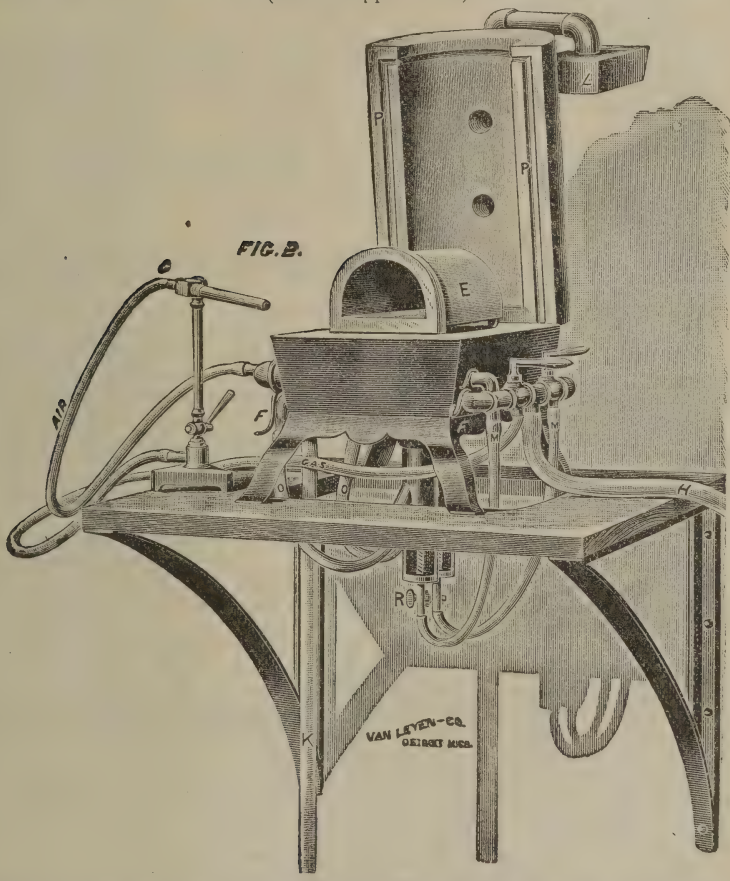
WILMINGTON, DELAWARE.

Having been justly recognized as manufacturing a very SUPERIOR TOOTH at a very moderate PRICE, they now avail themselves of this medium by which they hope to present their merits to the Dental Profession. They have now perfected their designs as to the character of their MODELS, and have fully succeeded in being able to present to the Dentist an opportunity to select a SHADE of enamel which will harmonize and correlate with that of the natural tooth.

☞ *For sale by Dental Dealers everywhere. Send for price list.*

DR. C. H. LAND'S
COMPOUND
GAS OR GASOLINE FURNACE

(Patent Applied for.)



Size No. 1, especially adapted for all kinds of muffle work, crucible work, blow-pipe work, forging and brazing. It is the most complete furnace lever devised for [the chemist, assayer, jeweler, dentist and metallurgist. Continuous gum and porcelain can be baked in from 15 to 20 minutes in the most perfect manner and with unerring precision. Send for descriptive circular.

Instructions—In order to enable those who contemplate using gas furnaces and to comprehend their great superiority over coal or coke fires, my laboratory will be open free to all, and with those who desire a special course in continuous gum work, enamel metallic coatings and enamel fillings, favorable arrangements can be made. A visit to my laboratory will be of the utmost value. Here furnaces are operated by both foot and steam power, using either gas or gasoline. Thus practical working can be seen to the best advantage.

Address, C. H. LAND, 264 Woodward Ave., Detroit, Mich.

10-6-AN 1.

DALY'S CHEMICALLY PURE

GOLD LINING

RUBBER SORE MOUTH CURED AND PREVENTED

Each Book Contains 8 Square Inches of Gold Lining.

NEW AND OLD RUBBER PLATES LINED.

This lining presents advantages that no other can. It is formed entirely of chemically pure gold. It is united mechanically with the rubber of the plate without the intervention of any other metal or of rubber or any other cements.

Being so formed and so united there can be no tarnish or chemical change of state from the action of the secretions of the mouth, or from the effects of galvanic action between different metals in contact. Its union with the rubber is so perfect that it cannot be separated from it, and its removal involves the destruction both of the lining and the portion of rubber with which it is in contact.

Every surface of the plate can be lined with it if desired. Old plates, no matter how long worn, can be lined with it, preserving perfectly the fit and articulation. Being formed entirely of pure gold it will not only prevent rubber sore mouth, but will cure that disease, when applied to rubber plates that have produced it.

That rubber sore mouth prevails under rubber plates to an alarming and much greater extent than is generally appreciated, is proven by the testimony, based on actual observation, of such eminent men in our profession as Drs. Taft, Atkinson, Walker, Kulp, Dorrance, Cutler, Allen, Eames, Cushing, Morrison, Judd, Flagg, Younger, Sturgiss, H. A. Smith, Crouse, and others, as well as of members of the medical profession.

This testimony is found on record in the printed proceedings for the last twenty years of such bodies as The American Dental Association, The American Dental Convention, The Southern Dental Association, and many District and State Societies.

The cost of lining plates will be seen to be small by taking the price of a book of it and counting how many plates of different sizes can be covered by eight square inches of lining—the amount contained in each book. Full instruction with each book.

Price per book, - - - - - - - $3.50.

DALY GOLD LINING DENTAL CO.,

AND ALL DENTAL DEPOTS. **WASHINGTON, D. C.**

10-6-an-1.

COMPOSITION
SILVER STRIPS.

(PATENT APPLIED FOR.)

Invention of Dr. E. Parmly Brown.

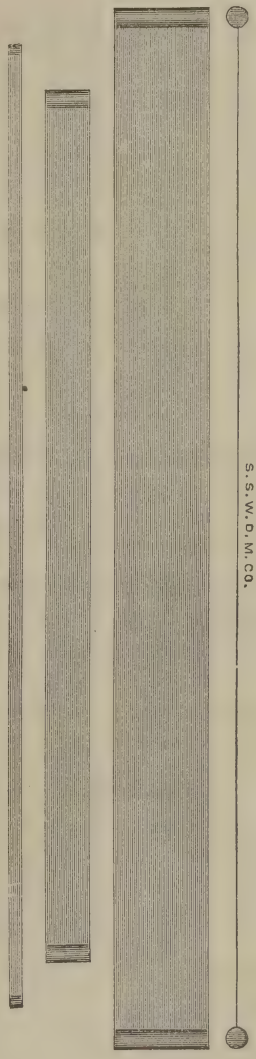
For dentists' use in polishing between the teeth and dressing approximal gold fillings.

To be used with wet pulverized pumice, or other suitable powder.

Can be smoothed out, after being used, by being drawn between the folds of a towel or over the edge of a table.

Put up in packages of one dozen, in a variety of sizes.

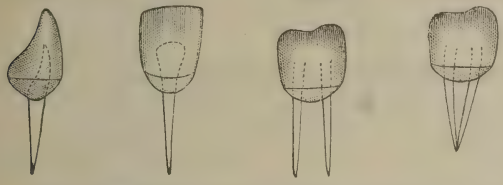
Price, ... per package, 50 cents.



DR. E. PARMLY BROWN'S TOOTH CROWNS.

PATENT APPLIED FOR.

FIG. 1. FIG. 2. FIG. 3. FIG. 4.



These cuts represent position and shape of pins in the tooth.

For full description, see *Dental Cosmos*, September, 1886, pages 583, 588 and 589.

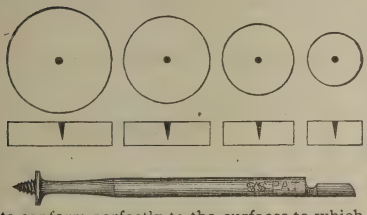
PRICES,

Brown's Tooth Crowns, . . . each 65 cents.

SOLD BY WELCH DENTAL CO.

MOOSE-HIDE POINTS FOR DENTAL ENGINE.

For Carrying Pumice or other Powders to Clean Teeth or Polish Fillings.



Designed and introduced by Dr. E. Parmly Brown, who claims that these Moose-hide Points are more efficient than any other engine polisher heretofore offered to the profession. A moment's use when wet causes them to conform perfectly to the surfaces to which they are applied, when they become like a brush, passing readily between the teeth to the point of close contact. Their extreme toughness gives them a firm hold on the mandrel. They can be used on any screw mandrel, but a medium sized screw and a medium length of mandrel as shown in cut are recommended by Dr. Brown as most satisfactory. A thimbleful of pumice-powder should be mixed with water in a small dish, and into this the Point should be dipped from time to time. A fresh Point should, of course, be used for every case.

Put up in boxes containing thirty Points, assorted sizes.

Price, ... per box, 50 cents.

No Dental office should be without

DR. BROWN'S UNIVERSAL SCREW CLAMP,

(CLAMP AND KEY, Nickel-Plated, $4.00.)

His *Depressed Dental Rubber Dam* is now being manufactured thin, and of the very best quality of Rubber, put up in boxes of twenty,

ONE DOLLAR PER BOX.

S. S. W. D. M. CO.

VARIOUS FORMS OF HAND-PIECE TOOLS

MANUFACTURED BY

The S. S. White Dental Manufacturing Co.

As several devices for holding tools in the different Hand-pieces have been placed on the market from time to time, we illustrate the various forms to enable parties to order intelligently.

PLEASE SPECIFY THE STYLE WANTED WHEN ORDERING.

Style A.

Patented Sept. 10, 1872.

Style B.

Patented Sept. 10, 1872.

Style C.
For the "C" and Cone-Journal No. 1 Hand-pieces.

Patented Feb. 24, 1874.

For Cone-Journal Hand-pieces Nos. 2, 5, 6.

Patented Feb. 24, 1874; *March* 25, 1879.

No. 4.
For the No. 4, No. 7, and Universal Hand-pieces.

Patented June 2, 1874; *Dec.* 5, 1876; *May* 21, 1878; *Re-issue Aug.* 6, 1878.

There are at present two forms of bits for Right-Angle Attachments, of which we give illustrations.

For No. 1 Right-Angle.

Patented June 2, 1874; *Dec.* 5, 1876; *May* 21, 1878; *Re-issue August* 6, 1878.

For No. 2 Right-Angle.

ALTERING ENGINE-BITS.

Dentists having burs which were made for other Hand-pieces can have them altered to fit the Cone-Journal. The change involves an addition to the shank, necessitating a charge of fifty cents a dozen.

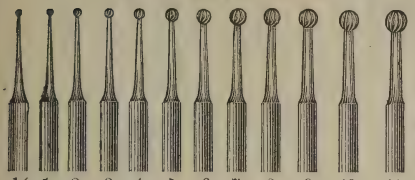
We have recently published a Price List of our Dental Engines and Equipments, which will be sent on application.

THE S. S. WHITE DENTAL MANUFACTURING CO.,

PHILADELPHIA, NEW YORK, BOSTON, CHICAGO, BROOKLYN.

EXCAVATING BURS FOR ENGINE.

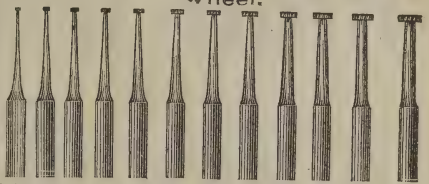
Round.



½. 1. 2.. 3. 4. 5. 6. 7. | 8. 9. 10. 11.

File-cut, $2 25 doz. Stoned 3.00 " | File-cut, $3.00 doz. Stoned 4.00 "

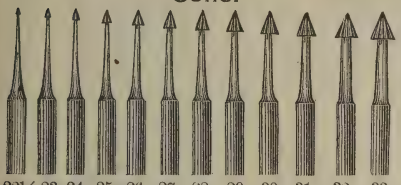
Wheel.



11½. 12. 13. 14. 15. 16. 17. 18. | 19. 20. 21. 22.

File-cut, $2.25 doz. Stoned 3.00 " | File-cut, $3.00 doz. Stoned 4.00 "

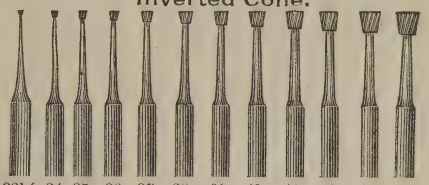
Cone.



22½. 23. 24. 25. 26. 27. 28. 29. | 30. 31. 32. 33.

File-cut, $2.25 doz. Stoned 3.00 " | File-cut, $3.00 doz. Stoned 4.00 "

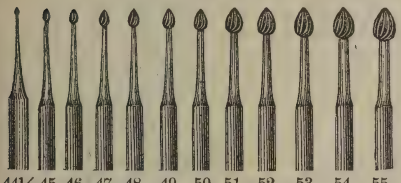
Inverted Cone.



33½. 34. 35. 36. 37. 38. 39. 40. | 41. 42. 43. 44.

File-cut, $2.25 doz. Stoned 3.00 " | File-cut, $3.00 doz. Stoned 4.00 "

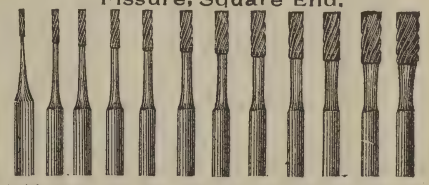
Bud.



44½. 45. 46. 47. 48. 49. 50. 51. | 52. 53. 54. 55.

File-cut, $2.25 doz. Stoned 3.00 " | File-cut, $3.00 doz. Stoned 4.00 "

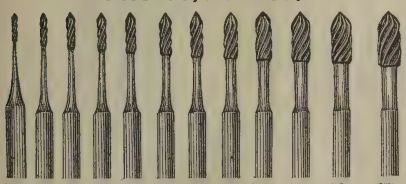
Fissure, Square End.



55½. 56. 57. 58. 59. 60. 61. 62. | 63. 64. 65. 66.

File-cut, $2.25 doz. Stoned 3.00 " | File-cut, $3.00 doz. Stoned 4.00 "

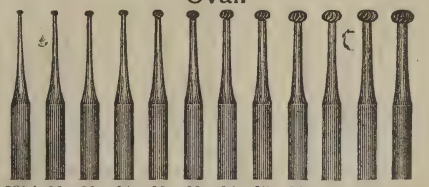
Fissure, Pointed.



66½. 67. 68. 69. 70. 71. 72. 73. | 74. 75. 76. 77.

File-cut, $2.25 doz. Stoned 3.00 " | File-cut, $3.00 doz. Stoned 4.00 "

Oval.



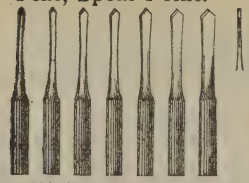
88½. 89. 90. 91. 92. 93. 94. 95. | 96. 97. 98. 99.

File-cut, $2.25 doz. Stoned 3.00 " | File-cut, $3.00 doz. Stoned 4.00 "

Burs and Drills for the Right-Angle, Acute-Angle, and Obtuse-Angle Attachments are the same price as those for direct action, but they are not made larger than No. 6, bur gauge,—size of No. 7 Round Burs. Larger sizes of Burs are destructive to the delicate mechanism of these attachments, and we do not advise their use, but if they are insisted on, we will make them—to order only.

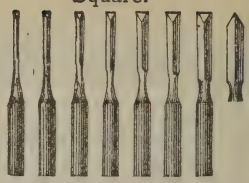
DRILLS.

Flat, Spear Point.



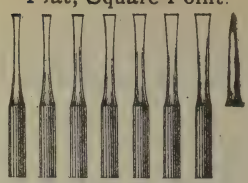
100. 101. 102. 103. 104. 105. 106.

Square.



107. 108. 109. 110. 111. 112. 113.

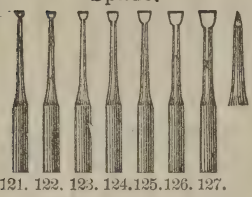
Flat, Square Point.



114. 115. 116. 117. 118. 119. 120.

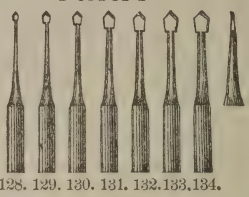
$2.00 doz.

Spade.



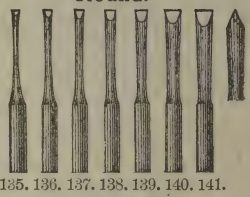
121. 122. 123. 124. 125. 126. 127.

Forbes's



128. 129. 130. 131. 132. 133. 134.

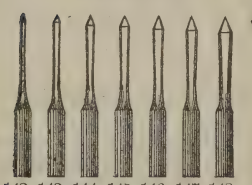
Round.



135. 136. 137. 138. 139. 140. 141.

$2.00 doz.

Five-Sided.



142. 143. 144. 145. 146. 147. 148.

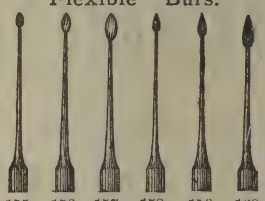
$2.00 doz.

Twist Drills.

150. 151. 152. 153. 154.

$3.60 doz.

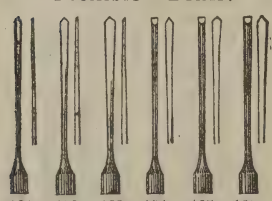
"Flexible" Burs.



155. 156. 157. 158. 159. 160.

$4.20 doz.

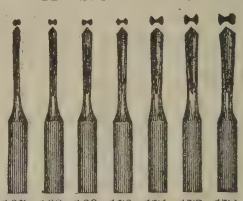
"Flexible" Drills.



161. 162. 163. 164. 165. 166.

$2.00 doz.

Ambler Drills.



167. 168. 169. 170. 171. 172. 173.

$2.25 doz.

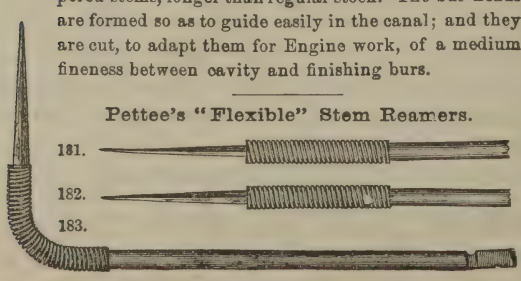
Talbot's Reamers.

178. 179. 180.

$4.80 doz.

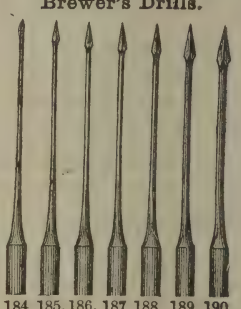
The "Flexible" Burs and Drills have spring-tempered stems, longer than regular stock. The bur-heads are formed so as to guide easily in the canal; and they are cut, to adapt them for Engine work, of a medium fineness between cavity and finishing burs.

Pettee's "Flexible" Stem Reamers.



75 cents each.

Brewer's Drills.

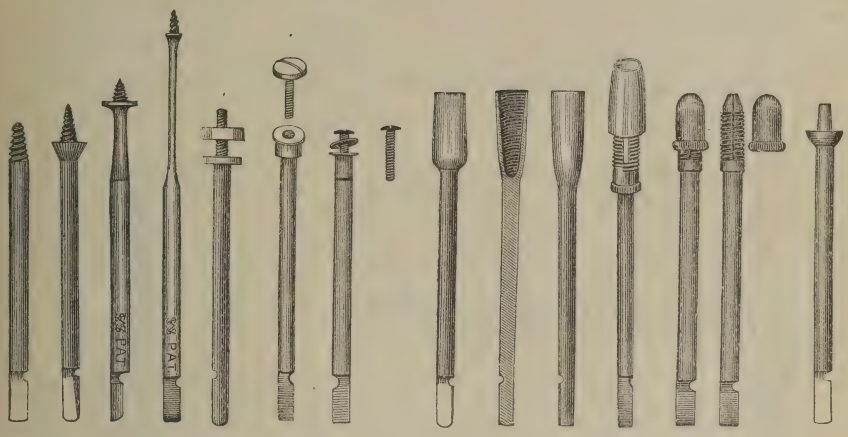


184. 185. 186. 187. 188. 189. 190.

$4.80 doz.

THE S. S. WHITE DENTAL MFG. CO.,
PHILADELPHIA, NEW YORK, BOSTON, CHICAGO, BROOKLYN.

MANDRELS, PORTE-POLISHERS, ETC.



300 301 301½ 301½ 302 303 304 305 306 307 308 309

No. 300 —Screw-Mandrel, without shoulder, - - - - 7 cts.
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" 301½—Screw-Mandrel, with shoulder, hardened and tempered, Nickel-plated, - 20 "
" 302 —Parting-Nut Mandrel, Right or Left-Hand, Nickel-plated, - 25 "
" 303 —Dr. Huey's Screw-Head Mandrel, Right or Left-Hand Screw, - 25 "
The Right-Hand Screw has a single slot; the Left-Hand, two slots.

This Mandrel, *with right-hand screw only*, is also made with spurs on the shoulder for holding sand-paper, rubber, and felt disks. Price, 35 cents.

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" 308—Needle-Chuck for carrying very fine retaining-pit drills made from sewing-needles. Three sizes. A will hold firmly sizes 5 and 6, Smith's Sharps; B sizes 7 to 9; C sizes 10 to 12. Price, either size, $1.25.
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PAPER-DISK MANDREL No. 311.

This Mandrel has a feathered pin which passes through the paper disk, enters the split head of the Mandrel, and is firmly clamped therein by the slide-ring. The disk is pierced by the feather, and truly centered by the pin, so that no time is lost in adjustment; and the worn-out disk may be quickly removed by sliding back the ring and pulling out the pin with the disk, or with the thumb-nail inserted in the pin-head groove. The device is very simple and effective.

PRICE.

Paper-Disk Mandrel No. 311, . . . each 50 cents.

Specify the Hand-piece used.

PAPER-DISK MANDREL NO. 312.

Patented Feb. 9, 1886.

This Mandrel—invented by Dr. J. W. Smith—has on the face of its split head four spurs, which penetrate the disk when the recessed cap-pin is pushed against it, firmly clamping it in the Mandrel by the slide-ring.

The reverse movement of the slide-ring permits the ready release of the cap-pin with the used-up disk.

Paper, rubber, or felt disks may be quickly attached to or detached from this excellent device.

Price, ... 50 cents.

Specify the Hand-piece used.

MANDRELS Nos. 313 and 314.

Suggested by Dr. S. G. PERRY.

No. 313 is practically the same as the Huey Mandrel No. 303, but instead of the screw having a slotted head it is drilled out in the center and squared so as to admit the pointed screw-driver, which fits the opening closely and prevents the loss of the screw. No. 314 works upon the same principle, but is much smaller and designed for carrying very small disks. The cuts are full size.

Mandrels Nos. 313 and 314, . . . each 50 cents.
Screw-Drivers, ... " 25 "

No. 314 was especially designed for Minim Disks.

313. 314.

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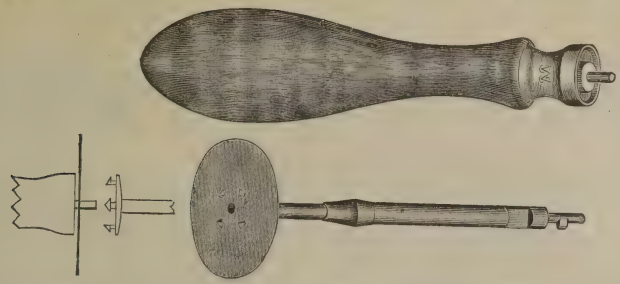


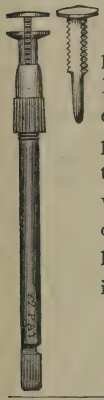
For mounting and carrying flexible disks. The quick method of application is shown in the sectional cut. When thus adjusted, the disk is held by the barbed spurs sufficiently firmly to be curved upon posterior approximal surfaces with but little danger of becoming detached. Price, complete, 80 cents.

Mandrel, separately, . 50 cents. | Handle, . . . 30 cents.

In ordering, please state the Hand-piece you wish them for.

PAPER-DISK MANDREL No. 315.

Patented May 10, 1887.



This Mandrel, invented by Dr. H. C. Register, has a feathered pin which passes through the paper disk, enters the slotted head of the Mandrel, and by means of the screw-thread on the edges of the feather, is engaged with the threaded sleeve which draws the head of the pin toward the head of the Mandrel, and firmly clamps the disk between them. It will run in either direction, and no manner of use will dislodge the disk without destroying it. The disk is easily and quickly removed by extending the thumb and finger of the hand which holds the hand-piece and grasping the milled sleeve while the Mandrel is revolving to the right.

The thickest or thinnest disk will be securely held.

Price, ... each 50 cents.

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In operating with these Drills it is to be observed that the smallest should be first used if the canal is narrow, because, as will be seen in the magnified illustration, the Glidden guide-point does not cut to enlarge the canal, but will merely guide the Drill into a canal no wider than itself, until it reaches the root-apex, through which only the sharp point will pass, and produce a sensation of pain that gives notice of its protrusion; yet, unless the foramen is wider than the base of the guide, the Gates Drill *will not cut through* the end of the root,—a danger that the improved Drill was specially designed to avoid.

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They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

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88 MAIDEN LANE, NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

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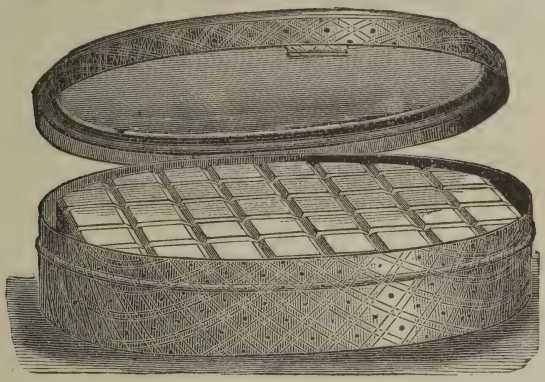

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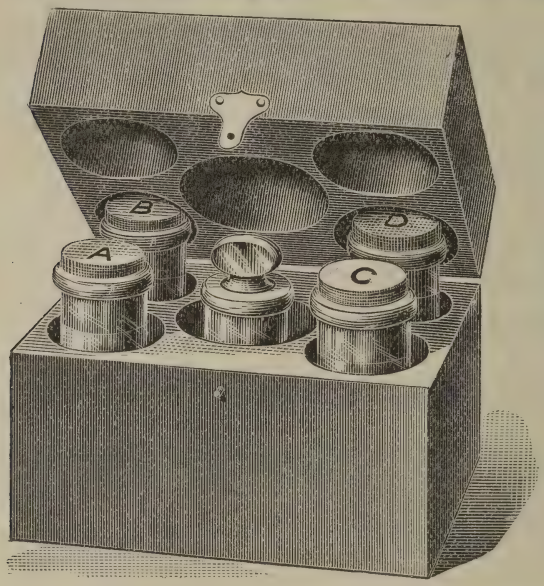

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—OF THE—

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—AT—

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SESSION OF 1887-88

OPENS OCTOBER 5, 1887.

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Table of Contents—October.

ORIGINAL COMMUNICATIONS:

Contributions to the History of Development of the Teeth. Carl Heitzmann and C. F. W. Bodecker 509
My Student. J. D. Moody 518
Hard Rubber and Corundum Disks and Wheels. Geo. A. Maxfield 520
Stenocarpin. Wm. H. Mitchell 523

REPORTS OF SOCIETY MEETINGS:

American Dental Association 525
Ninth International Medical Congress, Washington, D. C. 528
Connecticut Valley Dental Society 536
Southern Dental Association 541
New Jersey State Dental Society 547

EDITORIAL:

The Congress 550
Our Brethren Across the Line 553
Congratulatory 555
At Washington 556
Society Objects 556
Bibliographical 557

CURRENT NEWS AND OPINION 560

Index to Advertisements.

Horsford's Acid Phosphate....Cover Page 2
Charles H. Phillips Chem. Co.. " 2
Underwood Spring Water..... " 3
R. S. Williams..... " 4
Listerine..... Adv. Page 1
Dr. Robert S. Ivy..... " 2
Announcement..... " 2
A Sensitive Point..... " 2
Munn's Patents..... " 2
Seabury & Johnson..... " 3
Claudius Ash & Sons..... " 4 & 5
Codman & Shurtleff's Imp. Inhaler " 6
American Dental Manuf. Co.. " 7
Murdock's Liquid Food Co.... " 8
Edward Rowan & Co..... " 9
C. A. Timme & Co..... " 10 & 11
Hardman's Amalgams..... " 12
Dunn's Medicinal Syringe..... " 12
E. Kearsing..... " 13
Lawrence's Amalgam..... " 13
Wilmington Dental Mf'g Co.... " 14
Gasoline Furnace..... " 15
Daly Gold Lining Dental Co....Adv. Page 16
Dr. Brown's Univ. Screw Clamp " 17
S. S. White Dental Manuf'g Co. " 18–23
I. W. Lyon..... " 24 & 25
Akron Dental Rubber..... " 26
Parson's Eureka Alloy..... " 27
Florence Mfg. Co..... " 27
J. H. Smith's Cements..... " 28
To Inventors..... " 28
Farwell & Rhines' Gluten Flour " 28
Parke, Davis & Co..... " 29
A. J. Nickolds..... " 29
State University of Iowa..... " 30
Ohio College of Dental Surgery " 31
Penn. College of Dental Surgery " 31
Minnesota Hospital College.... " 32
New York College of Dentistry " 33
Philadelphia Dental College.... " 34
Chicago College of Dent. Surg'y " 35
Dental Review..... " 36
The Imperial Alloy..... " 36

The Independent Practitioner—Vol. VIII.

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THE

Independent Practitioner.

VOL. VIII. OCTOBER, 1887. NO. 10.

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Original Communications.

CONTRIBUTIONS TO THE HISTORY OF DEVELOPMENT OF THE TEETH.

BY CARL HEITZMANN, M. D., AND C. F. W. BÖDECKER, D. D. S., M. D. S.

CONTINUED FROM PAGE 462.

IV. THE EPITHELIAL CORD OF THE ENAMEL ORGAN.

The next question to be considered is, how does epithelium grow from an originally small point into a comparatively long epithelial cord? Most observers agree that epithelium has an independent growth, and that its elements by division and multiplication will produce epithelium, and no other tissue. During the last fourteen years many microscopists have studied the so-called indirect division of "individual cells," which became traceable after the application of certain reagents, especially saffranine. This dye rendered visible a filamentous structure in the nucleus, apparently independent of the surrounding protoplasm, which did not take up the stain of the saffranine. The filaments produced beautiful star-shaped figures, with equatorial divisions leading to a fission of the original nucleus, and the process has been termed *karyokinesis* or *mitosis*.

In fresh specimens, or those preserved in a chromic acid solution, the filamentous structure of the nucleus does not exist, or, at least, is not plainly visible, although Bizzozero, of Italy, recently claimed that saffranine will bring out the filamentous structure of the nucleus even in chromic acid specimens. The filaments taking up the dye were termed chromatine, and all those remaining pale, achromatine; and it was claimed that these were two different sub-

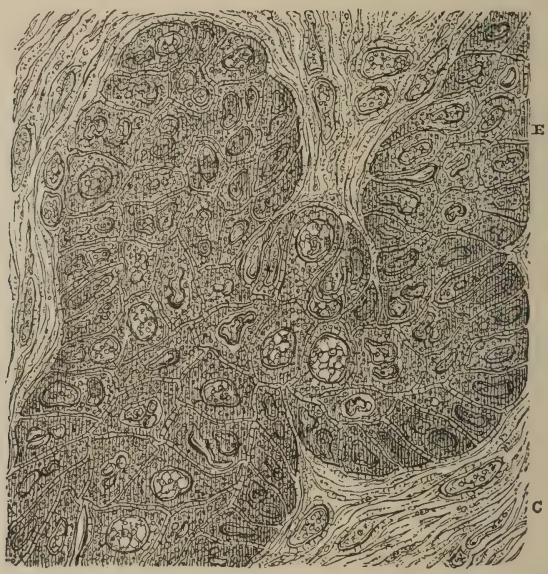

FIG. 32. *Epithelial cord of the enamel organ of a human embryo three and a half months old.*

E. Epithelial cord.
C. Connective tissue.

Magnified 800 diam.

stances. Considering the fact that the filaments are produced only by certain reagents, we should be loath in assuming that the structure thus rendered visible really corresponds to the unstained and living epithelium. The doubts become still stronger if we recall the fact that living matter is stained deeply by the same reagent, if present in a compact mass, where thin layers of it remain unstained, as is the case in the protoplasm which surrounds the central nucleus. From this point of view the terms chromatine and achromatine become superfluous, especially if we admit that the living matter dur-

ing life is in constant motion, particularly in the process of growth, although its continuity may temporarily be interrupted.

What we see in a growing epithelial cord, with high powers of the microscope, is depicted in Fig. 32.

We observe epithelia along the borders of the cord which are elongated and bear the name of columnar epithelium, while the central portion is filled with epithelia, exhibiting about an equal diameter in all directions, and which are termed cuboidal. Both varieties show differences in the size and structure of their nuclei. Some nuclei are very large and distinctly reticular, others are small and nearly compact, often appearing as if split up into several lumps, with a vacuole or plasmatic space. Sometimes a nucleus is elongated or irregular in shape, another being globular or vesicular. Again, we see epithelia much enlarged, holding in their interior several nuclei, a condition which has been termed by previous observers "the mother cell." Not infrequently we observe solid, spindle-shaped bodies in the cement substance, between two epithelia. All these forms become intelligible only under the assumption that epithelium is composed of protoplasm, in which the living matter greatly varies in size and shape, according to the state of growth and new formation. The cement substance is often absent, and thus large protoplasmic masses become conspicuous, with a varying number of nuclei. Where the cement substance is present, it is usually traversed with radiating lines, which are the connecting bridges of the living matter. Again, these lines may coalesce into solid masses, presenting spindle, pear, or club-shapes, from which new epithelia arise, as shown by Louis Elsberg.

The way, therefore, in which epithelium grows, is by augmentation of its living matter, and the appearance of new cement substance—that is, new lines of demarkation, in which process the continuity of the living matter—though temporarily interrupted in certain foci—in the whole remains preserved and unbroken. In the epithelial cord of the enamel organ the connecting spokes in the cement substance are prominently marked in all its layers and stages of development.

Of special interest are concentrically stratified globular nests and buds, in which the epithelia appear flattened and arranged in the shape of an onion. Such nests are often lacking altogether, and sometimes they are present in small numbers in the center or at the

periphery of the epithelial cord. Sometimes their number is very large, as represented in Fig. 1 (page 227). The centers of the nests are occasionally filled with globules of high refraction, possibly colloid material or elaidine (horn fat). In some specimens the epithelial structure of the peg is little marked, especially in places where the epithelial peg produces broadened layers, without sharp contours toward the surrounding connective tissue. In such places

Fig. 33. *Dissolution of epithelial cord of the enamel organ into isolated clusters of a human fœtus five months old; horizontal section.*

C. Fibrous connective tissue with scanty blood-vessels.
N. Epithelial nest composed of large, flat, almost epidermal-like scales, producing onion-like layers around the central group. This nest is surrounded by tracts composed of cuboidal epithelium.
E. Clusters of cuboidal epithelia holding concentrically arranged epithelial nests.
R. Remnants of epithelia transformed into clusters of medullary corpuscles.

Magnified 100 diam.

tracts are seen composed of rows of solid nuclei, or solid cords, between which fine granular protoplasm is visible. Such tracts have been repeatedly alluded to in the description of the early forms of development of the epithelial cord of the enamel organ. It is quite possible that in such places a transition takes place from the epithelial to the medullary, and from this to connective tissue. This is rendered probable by the fact that the broadened portions of the epithelial cord have sharp contours only on one side, whereas

the opposite periphery almost blends with the adjacent connective tissue, without a distinct line of demarkation between the two kinds. While we admit that the original epithelial peg and cord is of a marked epithelial structure, at the same time we claim that in the advancing process of growth the epithelium does not retain its specific structure, but blends with or is transformed into connective tissue.

Let us now ask the question: What is the ultimate fate of the epithelial cord of the enamel organ ?

In the earliest stages of its development we meet with numerous lateral offshoots and sprouts, which, preceding their ultimate disappearance, are visible in the shape of medullary corpuscles. The destiny of the cord is obviously the production of the enamel organ for the benefit of the formation of the enamel. This process is accomplished with the fifth month of intra-uterine life, with which the writers began the description of the formation of the enamel. In the latter part of the fourth and in the fifth month, the original epithelial cord undergoes peculiar changes, which have attracted the attention of many previous observers. The main change consists in the breaking up of the epithelial cord into innumerable clusters of a more or less marked epithelial structure, between which fibrous connective tissue has appeared, completely isolating the clusters. Changes of this description are best seen in horizontal sections of the jaws. (See Fig. 33.)

With low powers of the microscope, we observe a large number of clusters which are distinctly marked in specimens preserved in chromic acid solution. They have a brownish color, and are either sharply contoured or more or less blending with the adjacent connective tissue. Many of these clusters hold concentrically arranged epithelial nests, and, judging from their size and shape, they must have originated from a very active new growth of epithelium, which is indicated also by a number of buds sprouting from the original clusters. The buds have been pushed apart by fibrous connective tissue, since many of them appear entirely isolated, and as if imbedded in the fibrous connective tissue. Higher powers of the microscope reveal the fact that the process of dissolution of the original epithelial cord is identical with that of the external epithelium of the enamel organ, the only difference being that in the latter process numerous newly formed blood-vessels participate, whereas, in the breaking up of the epithelial cord, the new forma-

tion of blood-corpuscles and blood-vessels is not very conspicuous. (See Fig. 34.)

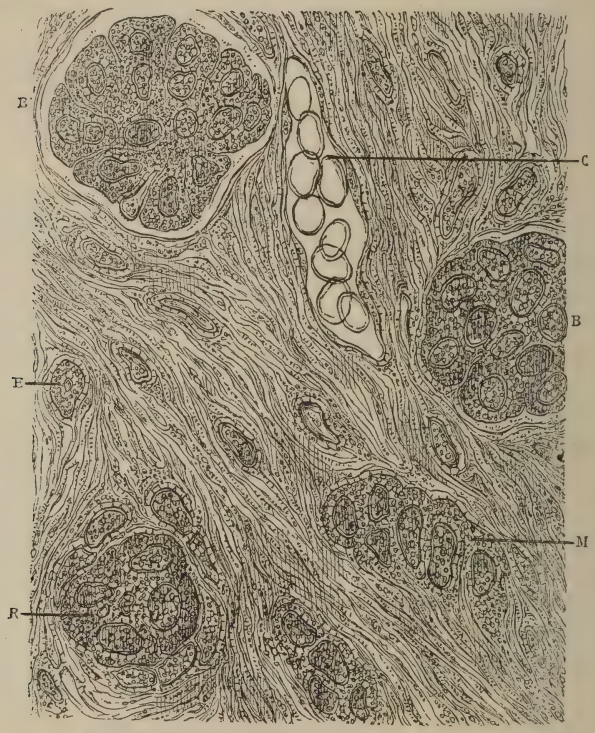

FIG. 34. *Dissolution of the epithelial cord of enamel organ of a human fœtus five months old; horizontal section.*

C. Capillary blood-vessel holding red blood corpuscles.
BB. Multinuclear protoplasmic masses arisen from the original epithelial buds.
R. Remnants of previous epithelia partly transformed into medullary corpuscles.
F. Single protoplasmic body, probably epithelium.
M. Medullary corpuscles in transition to fibrous connective tissue.

Magnified 800 diam.

The smallest isolated clusters, which are still recognizable by their brownish color, only show traces of a division into epithelia through an intervening cement substance. Most of them represent protoplasmic masses, with nuclei varying in size, and interspersed at more or less regular intervals. Such clusters are often found surrounded by an almost homogeneous layer of a so-called basement membrane. In the next stage, the cluster splits up into medullary

corpuscles at its periphery, whereby its size is considerably diminished, and the basement membrane lost. Ultimately the multinuclear protoplasmic mass, or the medullary corpuscles, split up into delicate spindles, which become infiltrated with basis-substance, thereby assuming the characteristic features of fibrous connective tissue. Sometimes we meet with single brownish corpuscles imbedded in fibrous connective tissue, which in size surpass the nuclei of the latter. Such formations are possibly the last remnants of previous epithelia, which have escaped transformation into connective tissue.

The ultimate fate of the epithelial cord of the enamel organ, therefore, is the same as that of the external epithelium of the enamel organ, it being partly transformed into connective tissue. The further the development of the enamel and the enamel organ proceeds, the less is visible of the original epithelial cord, although small epithelial clusters may be recognizable even in the sixth and seventh month of fœtal life.

In a previous article the writers have already alluded to the possibility that the epithelium, present between the outer surface and the enamel, may serve as stored-up material for the increase of the enamel, since at the time of birth this tissue has by no means attained the full thickness which we observe at the time of the eruption of the tooth, and also since on that part corresponding to the summit of the enamel there is no proper enamel organ left for the further growth of enamel tissue.

The epithelial cord does not, however, completely disappear toward the end of intra-uterine life. Near the surface of the oral mucosa we often meet with comparatively large spaces filled with loosely arranged flat epithelia of the character of epidermal scales, as illustrated in Fig. 35.

Thus far we have been unable to trace the connection of such a large pit with the rete mucosum, or surface of the oral epithelium. But there can be no doubt as to the origin of the pits. They must have arisen from the original epithelial cord, since the epithelial cord of the permanent tooth may be traced from their periphery. The cord in our specimen is broadened at its distal end and surrounded by a small papilla corresponding in every respect to the developing temporary tooth in an embryo of about three and a half months. The epithelia filling the pit are arranged loosely, simi-

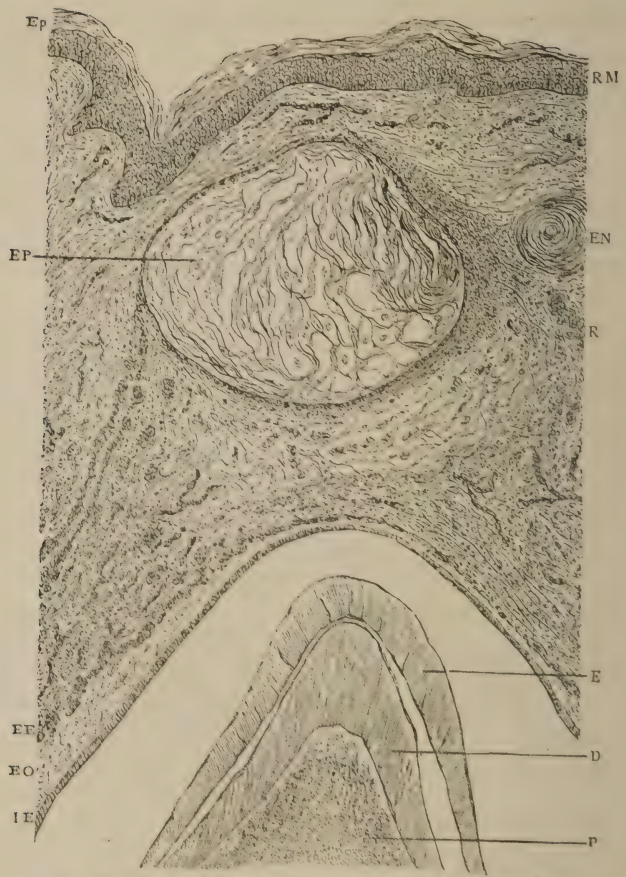

FIG. 35. *Tooth of human fœtus seven and a half months old: vertical section.*

P.	Papilla.
D.	Dentine.
E.	Enamel.
IE.	Internal epithelium.
EO.	Enamel organ.
EE.	External epithelium.
R.	Remnants of epithelial cord.
EN.	Epithelial nest.
EP.	Pit filled loosely with flat epithelia.
RM.	Rete mucosum.
Ep.	Horny layer of the oral mucosa.

Magnified 50 diam.

lar to those of the horny layer of the oral mucosa, and many of them hold glistening granules of what possibly is elaidine. The boundary of the pit is made up of a single row of cuboidal epithe-

lia, which in some places may produce stratified hills and protrusions. The pit corresponds to the summit of the temporary tooth, and its destiny seems to be to prearrange the route for its eruption. Between the lower periphery of the pit and the upper boundary of the enamel organ, or rather its external epithelium, the connective tissue is loose and approaches the myxomatous structure, containing very small groups of epithelium or medullary corpuscles sprung therefrom. Such clusters are especially conspicuous in the space between the epithelial cord of the permanent tooth and the external epithelium of the enamel organ, where a large number of capillary blood vessels is also visible.

From these investigations the writers derived the following corollaries:

I. The epithelial cord of the enamel organ is a formation of the epiblast.

II. In the same manner as the nerve centers (brain and spinal cord) are products of the epiblast, greatly changing their character in the further course of development, the epithelial cord gives rise to the myxomatous tissue of the enamel organ.

III. The epithelial cord arises from a furrow lined with epithelium, about the sixth week of intra-uterine life, and grows obliquely downward into the connective tissue, which latter produces the papilla about the third fœtal month.

IV. After the formation of the enamel organ the epithelial cord is dissolved into clusters which are partly retained in, and partly transformed into, fibrous connective tissue.

V. The remnants of the external epithelium, as well as those of the epithelial cord, very probably furnish the material for the increase of the enamel after the original enamel organ has been exhausted.

VI. The epithelial cord of the temporary tooth furnishes a lateral offshoot for the formation of the permanent tooth. The papillæ of the latter appear about the seventh month of intra-uterine life.

VII. From the epithelial cord, corresponding to the summit of the temporary tooth, spaces are formed which are filled with flat epithelia. Such spaces serve probably as guides for the eruption of the tooth.

(TO BE CONTINUED.)

MY STUDENT.

BY J. D. MOODY, D. D. S., MENDOTA, ILL.

I have been chary of students. Have had applicants plenty, but I am determined not to induct a man into the profession whom I believe to be unfit in any particular, or one of whom I cannot expect the very best. There are enough mediocre men already. I was proud, years ago, to receive the first applicant. It was something to have a student. But I soon repented my action, and since that time have uniformly said nay to all comers. I always did it pleasantly, however, and gave my reasons for it, and as for qualifications, I placed them at so high a mark as to discourage any but the greatest enthusiast.

I have felt that I was in some sense a door-keeper to the profession, and remembering my own easy entrance and the dire consequences of that same "easy entrance," I have determined to admit no one who cannot show qualifications entitling him to admission. The time was when the practitioner was chargeable with the influx of so much imperfect material, but things are different now. Studentship is largely relegated to the colleges, and these, in their struggle for existence, do not scan closely enough those who are passing through their doors. It is true that we have better material and better preparation than ever before, and yet the scrutiny is not close enough. Many unfit persons are still coming in. Unfit from a lack of knowledge of foundation principles, unfit by reason of mental organization, unfit from lack of moral principle.

But although we do not have as many students as formerly, we can exercise a great influence, both by our personal example and by our advice to those desiring to study, and as well by positive refusal to all but those properly endowed. I do not know but it is our duty to advise with the college to which a young man intends applying for entrance. We know the young man who goes from our town, better than the college secretary who takes his matriculation fee possibly can by a half hour's examination. Then, too, I believe a "good character" should mean something. We can make it mean something. Let me illustrate my meaning by quoting to you "My Student."

A young man came to me wishing to study dentistry. He was a country-bred boy, of good morals and a fair common-school education, rather backward in manner and appearance. To me he did not seem to possess the first qualification for a dentist. I tried pleasantly to discourage him, but he returned to the matter again and again. Finally, thinking his persistence deserved some attention, I enquired of him what he could do. Only one gleam of light appeared—he was handy with tools. I told him he was totally unprepared to study dentistry. Yet I have no doubt he could have entered almost any dental college, and been graduated in two years a mediocre dentist, and probably always have remained such. I told him, however, if he would pursue a course of preparatory study, such as I would lay out for him, and complete it creditably, that I would then lend him what assistance I could. I felt that if after doing the work designated he would still insist on studying dentistry, there must be the right kind of stuff in him. He consented to the conditions, and as soon as I could find the proper place for him, began his school life. I sought for a college where he could have the privilege of choosing his own studies, regardless of any regular course, and at the same time have good facilities for pursuing just those studies which I desired he should have. I was fortunate in finding just the place for him.

I gave him Botany, Zoology, Physics, Chemistry, Microscopy, and Animal and Vegetable Physiology as the required studies. He was to put in two years, of ten months each, on this work. He has just completed the course, and with flattering commendations from the faculty. In connection with physiology, he learned all the bones of the body and something of the arterial and nervous systems, and quite a good deal of hygiene. He received more of chemistry than is usual in dental colleges. In zoology he got a fair knowledge of the lower orders, which, in connection with vegetable physiology, gave him a taste for biological knowledge and a basis upon which he can in the future work out these problems by himself. I kept track of his study, and directed it from time to time as I thought best, consulting, of course, with his preceptors in the matter. He has come back to me prepared to begin, and full of enthusiasm for scientific work, and more than ever determined to be a dentist. There is but one course to pursue. The door should be opened to all such, *and only to such.* He is now fitted to go

into college and understand what the lecturers are talking about. He is in position to make the very most of the scientific suggestions thrown out by his teachers. In this I am not urging the cultivating of the intellect to the exclusion of the manual training. He has laid the intellectual foundation, and it now will not require so much of his time at college to learn preliminaries. Consequently, he can devote more attention to the manipulative part of the work, and acquire more strictly dental knowledge than would otherwise be possible in a two years' course. Any spare time that may come to hand can be devoted to perfecting himself in those studies which are not so familiar. Were all students so prepared, it would make easy work for the instructors; it would make grand work for the profession.

In the interim between school days he is in my office learning the names of things, their uses, working in steel, fashioning instruments, moulding in sand, etc., etc.

Possibly a better course of preliminary study could be suggested. Have I asked too much of him—subjected him to unnecessary expense? Practically, this is a four years' dental course, somewhat akin to the German gymnasium. Speed the day when something like it shall be the law of our land.

HARD RUBBER AND CORUNDUM DISKS AND WHEELS.

READ BEFORE THE CONNECTICUT VALLEY DENTAL SOCIETY, AT MONTREAL, JULY 21, 1887.

BY GEO. A. MAXFIELD, D. D. S., HOLYOKE, MASS.

Among the many appliances that have been brought to the notice of the dental practitioner within the past few years, none have proved of greater utility than corundum disks and wheels. We are indebted to Dr. Arthur for the introduction of these implements, and although the object for which he advocated their use —the making of permanent separations between the teeth—is justly condemned on all sides, the utility of the disks for other purposes is so great, that they will ever remain as part of the necessary equipment of the dental engine. What is known as the Arthur disks

and wheels, is a combination of corundum or emery with shellac. Their softness, which causes them to wear away very rapidly, is one great objection to their use. To overcome this difficulty, experiments have been made with other materials, such as celluloid, gutta-percha and caoutchouc, to combine with the corundum or emery and form a solid body. While for this use celluloid has many serious defects, and is no better than shellac, caoutchouc has been found to possess many advantages over both. Wheels of all sizes, from one inch to forty-eight inches in diameter, and from one-fourth inch to six inches in thickness, made from caoutchouc combined with emery, have been used in the arts and manufactures for over twenty years. These wheels, particularly adapted for use in the dental laboratory, are superior to those which are in general use, because they cut faster and last longer. Yet I have not heard of any dentist that uses them, nor of any dental depot that keeps them in stock. Why the dental depots fail to keep these wheels I cannot tell. I simply know that if we depend upon the dental depots for *all* our supplies, we deprive ourselves of many useful implements. This will not be so if we simply look about us and note what we can advantageously appropriate from those used in the arts and manufactures.

Hard rubber and corundum disks, for use in the dental engine, can be obtained at the dental depots, but I have not been able to find stump-wheels made from the same material. The process of making these disks and wheels is a simple one, and every dentist has in his laboratory all the apparatus necessary for the purpose.

In offering the results of my experiments in this direction I may not present anything new, but as the method I now use is very different from my first attempt, and as I have reached it by gaining a step at a time, taking hints from here and there, it may be of interest and profit to others if I recount it to you in detail. When I commenced my experiments, about five years ago, I started with the idea that it was necessary to have, for the disks and wheels, a mould into which the rubber and corundum must be pressed, and while in the mould vulcanized. Finding this a slow and tedious process, I began experimenting, and finally adopted the very simple method which I present to you to-day.

The most difficult part, which is also the first step in the process, is combining the caoutchouc and corundum or emery. Taking a

sheet of black rubber, so called, such as we use for making plates, I soften it over a water bath, not by dipping in hot water, as it must be worked dry. When softened, one side is covered with the emery (No. 90 if for cutting, No. 100 or 120 for polishing), then folded over on itself, and passed through a pair of rollers [a common clothes-wringer answers the purpose well], and this operation repeated until the proper quantity of emery is worked into the rubber. Use four parts of emery or corundum to one part of rubber, by weight. You observe that the combination of the rubber and emery is not a chemical, but simply a mechanical one.

This very tedious process would probably deter many from attempting to make these disks and wheels for themselves, but this objection has been removed, as at my solicitation The Keller Medicine Company, of Fort Wayne, Indiana, have already made arrangements to place the corundum-rubber on the market, and from a sample which they have sent me, I shall vulcanize a few disks and wheels before you to-day. After the corundum and rubber is properly combined, laying the rubber on a glass slab, and with a roller made by filling a bottle with boiling water, roll it to the thickness necessary for the disks and wheels,* and with the same cutters used for cutting sand-paper disks, cut out the disks or wheels. From scraps from the tin-shop I cut out disks of tin-plate somewhat larger, and stringing the corundum-rubber disks and tin-plates alternately on a wire the size of the screw of the mandrel used in the engine, clamp them together. For this purpose I use two square pieces of brass plate about one-eighth inch in thickness, with four holes in each for as many bolts, and screw them only tight enough to make a little pressure. They are now ready for the vulcanizer, and are vulcanized the same as a dental plate. As soon as removed from the vulcanizer, drawing out the wire, as it is more easily removed when hot, cool as rapidly as you wish, and when cold there is no trouble in separating the disks.

If it is desired to have hubs on the disks, take a number of pieces of brass plate, say about three-sixteenths of an inch thick, drill the hole for the wire, and countersink each side the size you wish the hub. By countersinking both sides you will need only half as many brass pieces, as the tin-plate can be used on the flat sides of

* To prevent the corundum-rubber adhering to the roller, dust a little of the corundum or emery over the surface.

the disks. To prevent them adhering to the brass, place a piece of tin foil between the disk and brass.

After the disks and wheels are vulcanized, true them up by placing them on the mandrel in the engine, and while running it, warm the edge of the disk in a flame of gas or alcohol till it softens, then run it against a piece of glass or porcelain.

To make the stub-wheels roll thicker than for the disks. Disks and wheels of different thickness can be vulcanized at the same time, but to vulcanize disks or wheels of different diameters it will be necessary to use heavier plates between them. Large wheels for laboratory use can be made in the same way as the small ones.

Disks and wheels for polishing fillings and teeth can also be made from vulcanite or soft rubber, and as the rubber for dental plates becomes hard rubber when vulcanized, it will be necessary to have a special rubber, one containing less sulphur, for this purpose, as the amount of sulphur added to the caoutchouc, and the length of time vulcanized, constitute the difference, after vulcanization, between hard rubber and vulcanite or soft rubber.

STENOCARPIN.

BY WM. H. MITCHELL, D. D. S., BERGEN POINT, N. J.

This drug, but recently introduced into the materia medica of dentistry, was first brought to the attention of the writer by Allan W. Seward, M. D., of Bergen Point, N. J., about the first of April of this year.

It was discovered by Dr. Seward in making an analysis of the leaves of the tree known in Louisiana as the Tear Blanket Tree, and had been brought to his attention by M. Goodman, V. S., of Bayou Sara, of that State, who had noticed that a poultice of the leaves, which he had applied to the fetlock of a horse that had been injured, possessed anæsthetic properties. He sent a quantity of the leaves to Dr. Seward, who discovered the alkaloid, which he has christened Stenocarpin, and which has for its formula C_{20} H_{21} NO_3.

The Tear Blanket Tree grows along the banks of the rivers and

streams of the lower Mississippi Valley, and attains a height of from thirty-five to forty feet, the branches spreading from thirty to thirty-five feet. The bark is smooth, and is covered with bunches of sharp spines that spring from a parent thorn, the bunch being quite flexible, but exceedingly difficult to detach from the tree, from which it grows at a right angle. These thorns often reach six inches in length. The tree bears a bean which grows in pods from eight to ten inches in length.

Dr. Seward mentions that in his experiments he had found it much superior to cocaine, and suggested that it might be a useful addition to the list of dental medicants.

Since April I have used it as an obtundent of sensitive dentine, and have had remarkable success with it. I made mention of it at the First District Dental Society of New York, at the June meeting, and since that time quite a number of practitioners of dentistry have been using the drug with marked success, wherever its anæsthetic properties were sought in obtunding sensitive dentine, soothing exposed pulps, or removing pulps and small growths from the surface of the mucous membrane of the mouth.

Dr. J. Herbert Claiborne, Jr., of New York, has witnessed wonderful results from its use in Ophthalmic Surgery, and reports the removal, from the forehead of a patient, of a sebaceous tumor of oval form, about one and one-fourth by three-fourths of an inch in size. This was done by saturating absorbent cotton with the two per cent. solution, which was placed over and around the growth. After a period of twenty minutes the sensation of the part had disappeared, and at the end of half an hour the operation was commenced and finished, removing the growth entire without any pain, save at one time when, in the deepest part of the operation, a slight sensation was perceived. A quantity of the solution was immediately applied, and the operation completed. A suture was passed through the wound, and it healed by first intention.

Those who have used the drug state they are highly pleased with its effects, and that there is a long future for it. It is a direct antagonist of morphine and opium, ten drops of the two per cent. solution neutralizing one grain of morphine or six of opium. Hypodermically administered, it is especially useful as an aid in extraction of teeth, when it is not desirable to administer a general anæsthetic.

Reports of Society Meetings.

AMERICAN DENTAL ASSOCIATION.

TWENTY-SEVENTH ANNUAL MEETING.

REPORTED FOR THE INDEPENDENT PRACTITIONER.

CONTINUED FROM PAGE 487.

WEDNESDAY MORNING SESSION.

Section III, "Operative Dentistry," was called. The report was presented by the Chairman, Dr. E. T. Darby. No papers were offered by members of the Section, but a number of topics for discussion were suggested.

The report stated that a year had passed since the presentation before this body of the Herbst method of filling teeth. Has the experience of the year demonstrated that as a system it is destined to supersede the old methods? Its introduction has stimulated us in various ways. The introduction of the Wolrab gold has resulted in the production of better gold here. The debates upon the rotation method have brought about a better comprehension of the principles involved in filling teeth, and have made us acquainted with new possibilities, and have thus resulted in great good, even if not one dentist should adopt the system exclusively.

The system of implantation of teeth, as practiced by Dr. W. J. Younger, has startled the whole profession. That many of his cases have resulted in at least a temporary success, no one will dispute. But it requires time to prove the entire reliability of the practice, and it is now too soon to pronounce positively concerning its merits. The possible danger would seem to lie in the fact that changes in the territory surrounding the newly implanted tooth may come with time.

The various kinds of separators lately introduced were referred to, and their relative merits discussed.

In operative dentistry, the advance during the year has been in methods. No specially new principles, aside from those referred to, have been enunciated, but there has been a steady improvement in intelligence and comprehension of basal laws. What is most

needed now is a plastic material which shall meet all the requirements of a perfect permanent filling. Amalgam has certain defects, and the other plastics are, at best, but temporary makeshifts. There must be in nature the long looked-for plastic. Could our funds be devoted to a better purpose than the stimulation of chemists to the production of the desideratum ?

No perfect obtunder for sensitive dentine has yet been presented. Absolute dryness and a temperature of from 90° to 100°, obtained by means of a stream of hot air, seem to be the most effectual means yet devised. What is now needed is an apparatus which shall easily and effectively heat the air to the proper temperature, and deliver it in the cavity in a satisfactory manner.

DISCUSSION.

Dr. Morrison—To accomplish the carrying down of the rubber-dam to the cervical margin of the teeth, I stumbled upon a device which has proven most effectual. I take a strip of elastic rubber, of proper length and thickness, and stretching it between the fingers until it will pass between the teeth, I force the dam to the point where it should rest. It will not cut the dam or tear it, while it will carry it to place much better than anything I have tried.

For many years I have been working upon the theory that irregularities in teeth should be prevented. Few cases would present if parents did their duty and were well informed. The deciduous teeth should be allowed to remain till pushed out by nature. In proof of his assertions, Dr. Morrison exhibited a number of casts, showing how teeth will care for themselves if permitted to remain in the mouth.

Dr. Watkins—Reported the case of a young miss of thirteen, whose lower anterior teeth shut entirely outside the upper ones. By wedging with cotton tape, and without the placing of any fixture in the upper jaw, the arch was so spread that the superior teeth were carried outside. Then an apparatus, consisting of an inside bar to which the teeth were attached by elastic ligatures, was placed on the lower jaw, and they were drawn into place.

Dr. Keely—Presented a case illustrating the evil effects of premature extraction of the second temporary molars before the eruption of the first permanent molars. It will, in nearly every case, cause a projection of the anterior teeth.

Dr. Barrett—Presented the case of a miss of fourteen, whose anterior teeth projected and were much shortened as if from thumb-sucking, which, however, was not the cause, the difficulty in all probability arising from the premature extraction of teeth. There were but two molars in the upper jaw, and the problem was to draw the six anterior teeth back by means of six posterior ones without danger of moving the latter. It was accomplished by carefully banding the bicuspids and molar on each side, as if for gold crowns, and then attaching these bands together by soldering to them a side plate which carried guides and a screw for drawing back a thin plate or strap, which passed across the faces of the anterior teeth, the whole apparatus being made of gold. The banding of the posterior teeth and the attachment of the bands to a side plate, presented so immovable an anchorage that tipping of the teeth was impossible.

Dr. Barrett also presented the case of a boy of seven years, whose central incisors were just appearing through the gum, all the other teeth being very short deciduous ones. By an accident, one central incisor was knocked out. Forty-four hours afterward the case presented itself. The knocked-out incisor was incomplete as to development, there being but a mere shell of the root, while the foraminal opening was almost the entire size of the root. A piece of small platinum wire was soldered at right angles to the plane of a very thin platinum plate, sufficiently large to cover the end of the root. The wire was cut to a length that admitted its introduction into the tooth-canal through the foraminal opening. The root was then filled with oxy-phosphate of zinc, and the platinum wire and plate placed in position, the latter being carefully burnished down over the end of the root. An impression in wax was taken, and a tooth about the size of the extracted one fitted in the cast and allowed to project to the length to which the original would probably have grown had development continued. Very thin platinum was then carefully burnished over the plaster casts of the teeth, it was stiffened by flowing gold over it, filled with oxy-phosphate of zinc, the extracted tooth having been first placed in position and the teeth all carefully dried, it was carried to place and held there until the plastic material had set. In three weeks reunion was sufficiently complete, and now, after one year, the extracted tooth cannot be identified by a stranger.

Dr. Priest—Forty years ago it was considered a great feat to accomplish the moving of any of the natural teeth. To-day it is but a simple matter.

Dr. H. A. Smith—When a tooth is to be moved, if a portion of the alveolar plate opposite it, either inside or outside, according to the direction in which it is to be moved, be cut away, it will greatly facilitate the process.

Dr. Knapp—The regulation of teeth is the most vexatious business a dentist engages in. A part of the pay, at least, should be demanded in advance. If this be not done the patient is apt to get discouraged and stop half way, placing the blame upon the dentist and defrauding him of the fees already earned.

Subject passed.

(TO BE CONTINUED.)

NINTH INTERNATIONAL MEDICAL CONGRESS, WASHINGTON, D. C., SEPTEMBER, 1887.

SECTION XVIII, DENTAL AND ORAL SURGERY.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY "MRS. M. W. J."

The sessions of Section XVIII were held in the Universalist Church, corner 13th and L Streets.

The Section was called to order in first working session at 3.30 P. M., Monday, September 5th, by Prof. J. Taft, of Cincinnati, President of the Section.

Short addresses of welcome were delivered by Drs. Thackston and W. H. Morgan, and responses upon the part of the foreign visitors were made by Drs. McLeod, of Edinburgh; Metnitz, of Vienna; Sjolberg, of Stockholm, and Grevers, of Amsterdam.

The President, Dr. Taft, then delivered his opening address, taking for his topic

THE FACTORS AND FORCES IN THE DEVELOPMENT OF DENTISTRY.

He said that one hundred years ago the germ from which has grown our art and science had no special significance—apparently no soil in which to grow. It was attracting no attention from the public. Its literature was vague and desultory until the work of John Hunter, on The Natural History of the Human Teeth, in

1771, attracted general attention and met with full appreciation. Until within the last fifty years there were not more than from thirty to fifty volumes worthy of attention. In 1839 the work of S. Fitch, on Dental Surgery, appeared, and in less than ten years after more than twenty new books were published, some of which are still accepted as standard text-books. The appearance of the *American Journal of Dental Science*, in 1839, was the beginning of the journalistic literature of the world. Since then more than a hundred periodicals have been established. From that time dental journals have continued to increase their influence and power, and are more potent to-day than ever before. In 1840, the American Society of Dental Surgeons was organized, the pioneer in association work. This was disbanded after a prosperous career of sixteen years, but the Virginia State Society, founded in 1842, the Mississippi Valley Society, in 1844, the Pennsylvania Society of Dental Surgeons, in 1845, the New York State Society, in 1847, and many others founded at that early date, still survive in active usefulness. The American Dental Convention was organized in 1855, and the American Dental Association in 1859. There are now but few towns of a thousand inhabitants which have not their local societies. No man with any professional ambition can afford to stand aloof, and refuse to participate in this work. England, France and Germany have efficient societies, while the Odontological Society of Great Britain has not been excelled, if equaled. Its systematic and valuable work is shown in the twenty-five published volumes of transactions.

In 1840 the Baltimore College of Dental Surgery was founded, the first institution in the history of the world for special instruction in the science of dentistry. The proposition to establish a dental college was a bold one, but it was the only thing to be done, for medical colleges had been appealed to in vain. It required courage and ability beyond those of any ordinary man, for there were no antecedents. Arduous labor was inevitable, the prospects of emolument hopeless. It is very doubtful whether their most radiant visions ever reached the realization of to-day! In five years success was a demonstrated fact. There are now twenty-two recognized dental colleges. In Europe, the University of Leipsic was the first to establish a dental department. That of Berlin is more like our own university dental departments.

In the United States, thirty-six States and Territories now have laws regulating the practice of dentistry. The laws of Great Britain, Germany, France and other European countries, are also quite stringent on the subject.

These are some of the factors and forces that have been instrumental in developing dentistry. Are they exhausted ? Have they done all of which they are capable ? Have they reached their maximum ? We believe they are capable of doing far more. These forces are in better condition than ever before for effective labor. Never has literature made a better record, or been more appreciated or utilized. Association work has never been more highly appreciated. Our colleges have received fresh impetus on their onward and upward career. We are warranted in anticipating still higher results, for the outreach was never so active. In the dental profession there is unity ; there are no *isms,* no *pathies ;* we move forward in solid column, each individual an independent thinker, but all in common sympathy. With no factions or divisions on which to waste our strength, we press forward to the fulfillment of the highest interests before us. An expectation is abroad for the work to be done in this Section. Let us fill these expectations to the full.

At the conclusion of the President's address, the State Dental Society of Minnesota presented him with an emblematic gavel, in the shape of a mammoth molar, of white cement set in black rubber, with gold bands—the rubber emblematic of elasticity of thought, the gold of purity of motives, the cement of the ties that bind all members of the profession together—the whole representing something that is in everybody's mouth, and that it pains us to part with.

The President received the gavel with thanks, predicting that all would now go smoothly, and that if any one was out of order he would yield to the pronunciamento of such a gavel.

Dr. R. Finley Hunt wished to present to the Section his finished work in the shape of the arrangements made for their accommodation. Its success must be judged by themselves. He hoped a vote of thanks would be tendered the Commissioners of the District of Columbia, and the Board of School Managers, for the use of the Franklin school building for clinics and the exhibition of the dental manufactures. He did not include the church building, because that was paid for. He hoped that all the officers connected with

the school buildings would be invited to attend the clinics and meetings. The vote was passed, and also a vote of thanks for the ample accommodations provided.

On motion of Dr. Marshall, of Chicago, a vote of thanks was tendered the President for his able and valuable address.

Dr. R. J. Porre, of Cincinnati, then read a paper entitled

"CHRONIC PYÆMIA OF DENTAL ORIGIN."

This was the history of a case of blood-poisoning of thirty years' standing, cured by the extraction of a suppurating impacted wisdom tooth. The patient had suffered in all the forms known to chronic pyæmia—eruptions with stubborn ulceration in hands and feet, frequent and painful inflammation of the throat, the bowels either constipated or distressingly loose, night sweats, rigors, pains in all parts of the body, darting and shifting from the maxilla to remote portions of the body. He had been treated for every local lesion, and for twenty years for syphilis. These are severe results to spring from one tooth, but they are morbid effects of animal poison in the system; of the distribution of morbific matter in the different tissues, heat, vertigo and rigors being modified by the supply of virus. Through changes induced by ulceration from inoculation, prostration and death may close the scene, or typhoid symptoms may intervene, or it may be either modified or aggravated by the intervention of other diseases, as scarlatina, diphtheria, etc. Nothing is more usual than discharges from the nose, ears, etc., or boils and abscesses in parts remote from the source of origin. All these pathological changes may follow the decomposition of animal tissue. The strength of the most powerful piece of machinery is only equal to that of its weakest part. A wandering corpuscle from supperating tissue, getting entangled in some debilitated part, begins its work of generation, and boils or carbuncles result. Pus itself is not the cause till it is demoralized by microbes, or ptomaines.

It is well understood that the gravity of the result depends on the vigor or vitality—the ability to cast out—and idiosyncrasies of the patient. Morbid secretions are capable of vitiating other territories. Scurvy is the cause of various lesions. Pyorrhœa alveolaris is another local lesion which is the source of the gravest results. Its etiology is not yet settled, whether local or constitutional, and it

is very variable in its forms of development. As the results of diseases of the periosteum, vascular tissues and smaller nerves and vessels atrophy, and the larger ones are congested. With proliferation of germs the teeth loosen and suppuration begins in a little stream of pus, not sufficient to endanger life, but enough to cause a degree of suffering not commensurate with the apparent magnitude of the cause.

In the case of a patient of thirty years of age, with no symptoms of constitutional disease, there had been four repetitions of severe swelling and inflammation of the face and neck. Finding no local cause, it was believed to be malignant. When the cyst was opened a teaspoonful of yellow pus was discharged. The first and second bicuspids were missing, the three molars good, with no evidence of any remaining roots. More thorough, systematic search, however, revealed the roots of the first bicuspid. The stench was intolerable when they were removed, but the exudation was small and cheesy. It was treated with a mixture of carbolic acid and chloroform, each one drachm, and eucalyptus oil one scruple, and the patient sent to a physician to recuperate his general health, Here there had been the gravest misapprehension both in previous diagnosis and treatment.

In the next case, a young merchant of twenty-eight years of age was suffering severe pain in the right side of the face and eye. He was of good physical ancestry, and had had good health himself till the last eighteen months; he had no appetite, his nervous system was prostrated. Sea bathing, etc., had been tried in vain. The facial pains affecting the right eye, he had also been under the care of an oculist. There was a typhoid tone and impaired digestion. An alveolar abscess was found covering one-half the roof of the mouth. There was a leaking plug in the bicuspid, but the pulp was alive. Fluctuation in the abscess was plain, but the outlet was obscure. The gum was found slightly detached at the right superior bicuspid, and on pressure there was an exudation of sanious fluid. A free opening being made, there was an immense discharge of purulent matter, forced out by pressure on the sac. The cause was caries of the alveolus. It was successfully treated through the opening made, and did not return.

In the third case, there was traumatic lesion of the tongue, diagnosed as pyæmia. The patient was sixty-eight years of age, and of

good physical history. There had been a gradual failure of health, of typhoid character, with cough and expectoration. Two teeth were suppurating, and the third lower molar cut into the tongue, distributing noxious matter by inoculation. Extraction afforded prompt cure.

The fourth case was also of good physical history, but had been suffering protean tortures for years, with every functional disorder. One peculiarity of pyæmia is its capricious tendencies and inexplicable ways. In this case there were furuncles of the scalp from cysts burrowing under the scalp. The extraction of ten bad teeth gave a complete cure.

In the fifth case, there was severe inflammation of the throat, which had been treated by a prominent physician for years as a disease of the throat, larynx and fauces. After the extraction of several molars the patient got well, the root of the third lower molar having been the special cause of the trouble.

The sixth case was facial paralysis. The pain was so severe that a naturally robust constitution gave way. The suffering was most intense in the left eye, which protruded frightfully. The paralysis began with a falling of the lips, which soon implicated the entire side of the face, paralysis being complete in four days. He was reduced in flesh to a mere shadow of himself, with various functional disturbances. There was a large filled cavity in the left lower second molar, the only tender tooth. The feeble condition of the patient forbade extraction, but the filling was removed, followed by an exudation of not uncertain odor, the result of chemical decomposition, putrefaction and absorption. Chloral, gum camphor, eucalyptus, alcohol and water were used in the treatment, and the improvement was phenomenal in the course of three or four days. The cure was radical, the patient's health being restored, the tooth saved and the paralysis cured.

Case seven was a representative case, the patient, sixty-four years of age. For four or five years he had been under medical treatment without avail, the cause not being found. Recognizing the symptoms of pyæmia, ulcerated teeth and gums were found, and seventeen teeth and roots were extracted. In ten days the patient had gained six pounds, and he progressed steadily to health.

In case eight, there was extensive caries and necrosis of the alveolus of the left maxilla, from the central incisor to the second bi-

cuspid. There was an opening through the gums to the alveolus the size of a filbert. The abscess had spontaneously opened with a continuous sanious discharge, very offensive, but giving no pain. There had been no improvement for a year. Extracting three teeth, the necrosed bone and septum was cut away, and sulphuric acid injected into the sinus. In a week there was a favorable change, followed by restoration of bone in thirty days, and speedy restoration to health.

In case nine, there was serious general debility with uterine complications, the patient having been an invalid for years. Her station in life was such that she was obliged to give some attention to household duties, after which she would be obliged to seek her couch from extreme weakness. A painful condition of the teeth and mouth was found, necessitating the extraction of fifteen teeth and roots. The alveolus was also involved in caries and necrosis. The extraction was deferred for two or three months, lotions being used for the gums, when the operation was performed. The shock to the nervous system was much less than anticipated, and was followed by restored health. The uterus is the most sympathetic of all organs, becoming readily involved in ulceration and congestion. In uterine troubles, where no cause is apparent, the teeth should be looked to.

A word in behalf of the little ones. In the teeth we find the frequent cause of their diseases. In the majority of cases, from three to twelve years of age, the teeth are more or less carious. Pyæmia prevails with them as with adults, with less vital force to eliminate it, giving rise to most serious results. One collapsed abscess is sufficient to vitiate the tissues. Children are so susceptible to apparently trivial causes, that we find them panting their lives away, the cause unsuspected till the mouth is opened, and it is found in carious teeth and discharging abscesses.

Physicians are awakening to this fact, and are now sending ten cases to the dentist where they formerly sent one, and there are few cases which are more promptly relieved than chronic pyæmia of dental origin.

The discussion of Dr. Porre's paper was opened by Dr. J. Frank Lydston, of Chicago, and continued at the session of Tuesday, 11 A. M., by Drs. Geo. H. Chance, Portland, Oregon; W. C. Barrett, Buffalo, N. Y.; Mr. Walker, London, Eng.; A. O. Rawls, Lex-

ington, Ky.; F. H. Rehwinkel, Chillicothe, Ohio; C. A. Brackett, Newport, R. I.; A. E. Baldwin, Chicago, Ill.; W. J. Younger, San Francisco, California; Genese, Baltimore; Whitefield, Evanston, Ill.; Story, Dallas, Texas; and others.

Dr. Chance—Exhibited a specimen of pyogenic membrane from a case in which the trouble arose from a left lateral incisor, with caries of the maxillary bone, almost reaching the palatal bone.

Mr. Walker—Expressed his surprise that Dr. Porre should so frequently use the forceps. According to his observations a great many cases were cured by treatment without extraction; in fact, it was the general rule in England.

Dr. Rehwinkel—Said that all were familiar with the pathology as described, but, as Prof. Dawson had once said to him, the idea of ascribing such serious results to a mere dental lesion was not long since an absurdity in the eyes of most physicians. The dentist who would have propounded such a thing to physicians five years ago, would have been called a fool for his pains. But now there are many physicians who send such cases to the dentist. The paper opens a large field for discussion, and in pyæmia, as in pyorrhœa, the dentist cannot confine himself to mere local treatment.

Dr. Brackett—Thought that more careful examination would reveal carious and necrosed bone far more frequently than was supposed.

Dr. Younger—Wished to suggest two remedies—nitric acid for the dissolution of necrosed bone, from its great affinity for lime-salts, and corrosive sublimate, one to four *per mille*, as a disinfectant.

Dr. Genese—Thought there was a possibility of harm from the caustic and escharotic action of the remedies proposed, and preferred dilute aromatic sulphuric acid as safer, defining the line of demarcation between living and dead bone without fear of bad effects. He said that a small pellet of the solid extract of white poppies applied to the affected part would afford relief. It could also be dissolved in water and applied externally as a wash.

Dr. Whitefield—Advised electrolytic action for the destruction of microbes, using a platinum needle, with the other pole on the gum.

Dr. Storey—Asked whether the pus was supposed to enter the blood by direct absorption, or was taken up through the stomach and digestive process.

Dr. Porre—Replied that the point was left open for the Section to

decide. It would vitiate the blood in either or in both ways, or if the individual had sufficient vitality he might throw off the pus and resist its effects for an indefinite time, perhaps for years, but he must eventually yield. Extraction was resorted to only when the tooth was past salvation.

Dr. Barrett—Thought the discussion was not up to the standard of medical knowledge which should be exhibited in such an assemblage as this. He objected to the term "pyogenic membrane" as savoring of long ago exploded theories. In the consideration of pus centres we could not ignore the later advances in pathological knowledge, nor refuse to consider the influence of microbes. Wherever there was pus there was infection, and all treatment must be based upon antisepsis. He could not subscribe to the idea of wandering pus-corpuscles, nor that the swallowing of pus necessarily induced pyæmia.

On motion the subject was passed.

(TO BE CONTINUED.)

CONNECTICUT VALLEY DENTAL SOCIETY.

SEMI-ANNUAL MEETING, HELD AT MONTREAL, P. Q., JULY 19 TO 21, INCLUSIVE.

REPORTED BY GEO. A. MAXFIELD, D. D. S., SECRETARY.

CONTINUED FROM PAGE 495.

TUESDAY EVENING SESSION.

Dr. W. Geo. Beers, of Montreal, read a paper on "Alveolar Abscess." The essayist reviewed the literature of the subject, and detailed some of the views of early writers. He said that whatever the primeval cause of alveolar abscess, it always originates in the apical space, as the result of apical pericementitis. An old Montreal practitioner was the first to introduce arsenic to the profession for the devitalization of tooth-pulps, but Spooner should not be held responsible for its abuse. Many cases of abscess are due to the injudicious use of this drug. The old theory that it was in the course of time absorbed, even at the expense of the translucency of the enamel, satisfied the practitioners of the early school, but dead

pulps, unlike dead men, do tell tales, and the effects of the use of arsenic have been too plainly revealed to us to doubt.

He said that in some cases constitutional treatment is indicated. In opening canals it is not safe to use drills where broaches will not penetrate. A root may be curved at the apex, and this may be discerned if a broach can be inserted, while a drill might do possible mischief. In the early stage of hyperæmia he recommended a kind of massage with the finger.

DISCUSSION.

Dr. Atkinson—When a case first presents I do not hesitate, after removing the pulp, to pass a drill through the root so as to relieve the congestion. If the tooth is painful to bite upon, with the engine cut down the occlusion. Many are not sharp enough to see that the occlusion is a cause of irritation. Often this is all that is necessary to be done, and after doing this you can send the patient home.

Dr. Shepard—What if the patient comes back with a worse pain?

Dr. Atkinson—Tie a string tightly about the tooth and have the patient hold it; then with a scalpel cut through the gum over the root, right down to the tooth, and let it bleed freely; this relieves the patient instantly. Cut in straight lines down to the lower margin of the alveolar plate; do not cut below the margin; the object is depletion.

Dr. Shepard—Have you not then lanced the abscess?

Dr. Atkinson—You are impressing what I do not say. The pericementum is connective tissue, and it is in this tissue at the apex of the root that the abscess forms. This connective tissue is a band about the root of the tooth, and we simply cut this band.

Dr. Shepard—You are not clear. Do you not give vent by making the opening?

Dr. Atkinson—No! Cutting the band relieves the tension. I do not care if I cut through to the dentine; it will heal by first intention. This band of connective tissue fiber, when inflamed, hugs tightly around the root. Often I have had patients exclaim, "that feels good!" when I have cut it in this way. It is tension about the root by the pericementum that causes the pain.

Dr. Shepard—But patients come back next day in worse condition.

Dr. Atkinson—They do not. I never have known a case that was not cured if properly treated. There is no such thing as not curing an abscess. A short time ago a dentist brought to me a case that had not yielded to his treatment, and it was only because he had not been sharp enough to diagnose it as an abscess in the antrum.

Dr. Shepard—Can one diagnose accurately enough to treat all cases successfully ?

Dr. Atkinson—Those who diagnose cases clear through, every time, are not the ones to follow as your teachers. Know what step to take first, then watch developments.

Dr. Shepard—What is the next step to take ?

Dr. Atkinson—Do not make a stroke in the dark.

Dr. Shepard—I want to know something more.

Dr. Atkinson—There is much more to be said on this subject. These abscesses are caused by dead pulps; after removing them, go through the gum from the outside, and with the engine bur slash around the end of the root; if necessary, cut off the end of the root.

Dr. Bazin—Will it make any difference if the patient is a hard drinker ?

Dr. Atkinson—Not any difference ; of course you must consider the habits of your patients. It will be necessary for you to have entire control. Abscesses can be entirely prevented, and the dentist is to blame who allows one to recur.

Dr. Stowell—This slashing around is quite painful to the patient. Is there any objection to injecting cocaine ? I have, by its use, been quite successful many times in making this part of the operation a painless one.

Dr. Atkinson—We are not well enough acquainted with that drug. It may not be safe to use it in such close proximity to the brain. Do not notify your patients of what you are going to do.

Dr. Maxfield—Wouldn't you recommend painting the gum with carbolic acid before lancing ?

Dr. Atkinson—Yes, and it then might be done almost painlessly.

Subject passed.

WEDNESDAY EVENING SESSION.

The meeting was called to order at 8 o'clock.

Dr. R. R. Andrews, of Cambridge, read a paper upon " Develop-

ment of the Teeth," illustrated with the Stereopticon. He gave a detailed account of his manner of preparing the slides for the study. The specimens used were all prepared from embryo pigs, calves and cats. Placing these under the microscope, the camera is placed in position and a negative is taken; from the negative thus obtained a positive is taken, and this last is used as the slide in the lantern. Over fifty different slides were projected on the screen, showing the tooth in the different stages of its development, making one of the finest exhibitions ever given before a scientific body. Owing to insufficient light he was unable to bring out clearly a number of his finer specimens.

THURSDAY MORNING SESSION.

Called to order at 9 o'clock.

The discussion of Dr. Andrews' paper was declared in order.

Dr. Shepard—I regret very much that the light last night was not sufficiently strong to bring out all the fine details of the microphotographs. With a more powerful light all these would have been brought out very clearly.

Dr. Barrett—I want to say how much I appreciated Dr. Andrews' effort last evening. It was the finest display of its kind that I have ever seen. To be sure, some of the finer views were not as well brought out as we would like to have had them, yet enough was shown to make it a rich treat for every one of us. I feel greatly indebted to Dr. Andrews.

Prof. Mills—I am very much indebted for the demonstration and teaching of last night. I felt a good deal of sympathy for our friend, who has had to fight against established opinions for fifteen years. I think that if this work could be attacked from the light of the human embryo, it would be well. Those could be obtained if medical men were more interested. A rapid change of human teeth is going on. In the course of the evolution of man the jaws have changed, and there is less room for the teeth. Teeth are not infrequently absent, or appear late. This change in the development of the teeth has been related to nutritional changes, and that has not kept up with development of the brain, especially the cerebrum. A short time ago I wrote an article, which was published in the *Canadian Record of Science,* in which I tried to draw attention to the loss of the hair from a physiological standpoint. The hair and the teeth are

dermal structures, which receive their blood supplies from small branches of arteries that anastomose at the carotids. It is possible that the non-appearance of the teeth at the proper time, and their early decay, have the same common origin with that of loss of the hair. I think that on this subject dentists might throw some light. The hair of women, however, has a persistent vitality not met with in men, so that in them the same relation to the teeth does not probably hold good.

Dr. Black—I acknowledge my obligations to Dr. Andrews for last night's work. The method of photo-micrography is a plan of exhibiting, through which many may be taught what cannot be taught by any of the ordinary plans of microscopic study. These pictures are not liable to tell lies, and more likely to tell the truth than those drawn with pencil. I agree with Prof. Mills in regard to what he says about the human embryo. Perhaps Dr. Andrews could also help us in another work. With his high powers and trained observation he may be able to project on the screen the different forms of micro-organisms, and then, perhaps, we may understand the difference between them, and divide them into species as easily as animals.

Prof. Mayr—I am sorry to see in so excellent a book as that of Dr. Heitzmann a passage which speaks slightingly of micro-photography. Drawings are, in some respects, untrue, and the finer and sharper they are drawn, the farther they are from the truth. This point appears most strikingly when we compare the beautiful (and as nearly truthful as possible) drawings in Dr. Heitzmann's work with the blurred outlines of excellent photographs. In the microscope we do not see sharp lines; we see blurred lines, and the photograph correctly copies this condition of affairs.

Dr. Atkinson—In regard to drawings as compared with photographs, I have to say that the best drawings of that master of graphic representations, Heitzmann, are in a sense lies; that is, the unimportant parts are held in abeyance, to bring out into high relief the parts that are desired to be brought out, and in that sense drawings are ahead of photographs. I protest against this manner of naming things that Dr. Black used in his paper. This employing Greek words that no one understands. Away with such things; let us use plain English that every one understands.

Dr. Black—I feel inclined to say a word in regard to the matter

of talking Greek. If I should stand up before you and translate these Greek names, you would not know what I meant without an explanation. As the books employ the terms that I used, I thought it better to take them as set down rather than to attempt the invention of new ones, and inevitably to complicate our nomenclature yet more and more.

Subject passed.

(TO BE CONTINUED.)

SOUTHERN DENTAL ASSOCIATION.

NINETEENTH ANNUAL SESSION AT OLD POINT COMFORT, VA., 1887.

REPORTED FOR THE INDEPENDENT PRACTITIONER, BY "MRS. M. W. J."

The Southern Dental Association convened in nineteenth annual session at Old Point Comfort, Va., Tuesday, August 30, 1887.

Ample accommodations had been secured in the Hygeia Hotel, and the soldiery of Fortress Monroe, adjacent, furnished abundant material for every class of dental operations for the clinics.

The President, Dr. W. H. H. Thackston, presided at every session.

The first session was called to order at 10 A. M. The address of welcome was delivered by Dr. V. Edward Turner, of North Carolina, and the response by Dr. J. H. Prewitt, of Kentucky.

Dr. Ernst Sjoberg, of Stockholm, Sweden, responded on behalf of the foreign members of the profession present. Visiting dentists from abroad, and those from the north, east and west, were invited to participate in the discussions.

The President then delivered his annual address.

At the session of 3 P. M., after some routine business, on motion of Dr. J. B. Hodgkin, of Baltimore, a committee of three was appointed to draft resolutions expressive of the sense of loss sustained by the Southern Association in the death of Dr. J. R. Walker, of New Orleans, one of its oldest and most active members, and one of the founders of the Association.

After announcements from the Committee of Arrangements, the

Committee on Clinics, the Committee on Appliances, etc., the meeting adjourned to 10 A. M. of Wednesday, August 31st, when Dr. A. E. Baldwin, of Chicago, Ill., as the special order of the day, read a paper entitled

IMMEDIATE ROOT FILLING.

The writer was not an advocate for pulp-capping, when the pulp is truly exposed, and judges of the merits of the system from the remarks of many patients upon whom the operation had been performed, and who were subsequently having abscesses treated or roots filled in teeth whose pulps had been saved (?) by capping. He believed that the interests of the patient were best subserved by devitalization and immediate root filling. He said that the usefulness of the pulp has been mainly accomplished when the tooth is fully developed, and he would strive more earnestly to save a pulp for a child than for an adult. In the majority of cases of abscesses, the roots are best filled immediately, thus removing the cause of the trouble, which lies in the condition of the pulp-chamber or root-canals. If the difficulty is due to necrosed surroundings, it can be better treated from the outside than through the root-canals, and nothing is gained by leaving them open.

After applying the rubber dam and cleaning out the pulp-chamber and root-canals as thoroughly as possible, his practice is to wipe them out with a ninety-five per cent. solution of carbolic acid, and then with alcohol, because of its affinity for the water in the tooth substance.

His main reliance is on the next step, which is that of the thorough drying of the canals, and the desiccation of the contents of the dentinal tubules, by means of hot air, never attempting to fill till he is morally sure that the tooth substance is thoroughly dry. Gutta-percha solution is then pumped in the canals until they are thoroughly filled, using in this process a broach made of piano wire, roughened by rolling it under a fine metal file, and wrapped with a fine shred of cotton. A piece of heated base-plate gutta-percha is placed over the opening to the root-canals, and the contents forced into the uttermost limits of the dry canals, and even into the mouths of the tubules. The walls being perfectly dry, the gutta-percha will cling tenaciously to them, instead of shrinking away, as is the case when there is moisture. The writer of the paper waits for a week or ten days after devitalization before re-

moving the dead tissue, allowing it time to slough from the living tissue, thus saving pain to the patient. He did not claim to remove all the debris from all canals, some being so tortuous that they cannot be gotten at. He also thinks that the importance of micro-organisms has been greatly exaggerated. He does not accept the dictum that there is never any pus-formation save in the presence of micro-organisms, or atmospherical germs, believing the contrary proved by the formation of pus in a felon, or an acute synovitis of the knee-joint. He does not think the entire removal of all the debris from even the smallest canals necessary, provided it be desiccated and hermetically sealed. He does not commend the use of a long list of new remedies, believing that with earnest study of their capabilities and adaptabilities, a few, carefully selected, will be found to meet all our wants. In conclusion, he urged each one to reason and think for himself, and not be a blind follower of any one. In this way we shall grow, expand, and progress onward and upward toward the goal of perfection.

Dr. M. C. Marshall, Little Rock, Arkansas—Read a paper entitled

CONSERVATISM IN SELECTING FILLING MATERIALS,

and the two papers were discussed together.

Dr. Marshall spoke of the introduction of cohesive gold, and the delight with which the welding principle was hailed. To best serve his patients, the operator must adopt a conservative course. If his judgment conflicts with the ideas of his patient, he must have the courage of his convictions. To be a successful operator, he must have the mechanical skill to introduce a filling properly, an artistic eye to reproduce nature, and scientific knowledge to determine what material is best for the case in hand. He must consider the constitutional tonicity and the age of the patient, and the position of the cavity. Duty must transcend any hobby, and the æsthetic must not dominate the practical.

In the discussion which followed the reading of the papers, Dr. Baldwin was asked why he used the ninety-five per cent. solution of carbolic acid. He replied that pure carbolic acid was always in crystals ; the water of deliquescence formed in warming the crystals is the ninety-five per cent. solution which is used in wiping out canals, etc.

Dr. Winckler, of Georgia—Approved the suggestion of drying to

desiccation, but preferred lead points or carbolized wood, and gutta-percha points for root-canal fillings. He thought the immediate filling applicable only to roots freshly devitalized, for which purpose he preferred knocking them out with the wooden peg. It can be done very quickly, is almost painless when skillfully done, and the tooth requires no treatment, after removal of the fibrous tissue, beyond washing out with alcohol. Dormant dead pulps require treatment with peroxide of hydrogen till ebullition ceases, when he applies a paste of iodoform and creosote until the next day.

Dr. J. C. Storey, Dallas, Texas—Did not pretend to fill all roots. He had not seen any of the drills that could follow tortuous canals and stop right at the apex. He used oxy-chloride of zinc for root fillings.

Dr. C. E. Kells, Jr., of New Orleans—Does not think the contents of root-canals which are too fine to admit a nerve bristle will do any harm. He uses carbolized wood points for the apex, and fills with Guillois' cement.

Dr. W. H. Morgan, of Nashville—Drills all root-canals, cutting out the dentine, and with it the tubuli and contents. He doubts the possibility of the desiccation spoken of. If it could be done it would effectually prevent decomposition, as fluids are essential to germs, and germs are essential to putrefraction.

Dr. T. T. Moore, of Columbia, S. C.—Pumps in liquid gutta-percha, and then drives in a lead or wood point, forcing the gutta-percha in all directions.

Dr. W. H. Richards, of Knoxville, Tennessee—When forced to devitalize, applies arsenical paste, removing the pulp four hours after making the application, when the pulp is congested and anæsthetized. At that point the removal is effected almost without pain. He then fills with a paste of ninety-five per cent. solution of carbolic acid and iodoform, which he leaves in the canals for twenty-four hours, to prevent septic action in the tubuli.

Dr. Sjoberg, of Stockholm, Sweden—Said that his practice, in cases where the roots were liable to be very difficult of access, and the pulp inflamed but not reduced to a formless mass, was to apply arsenical paste, removing only the coronal bulb of the pulp, placing over the opening to the root-canals (the contents of which were left undisturbed) a paste of carbolic acid and oxide of zinc,

capping over this with a platium disk, and filling the pulp-chamber with cement. This operation was termed amputation of the pulp, and was usually very successful. It is used only in very bad cases, in which the canals cannot be washed to clean and fill.

Dr. McKellops, of St. Louis—Said that with all our best efforts there was still a lamentable want of success. No man would honestly claim to clean and fill all root-canals.

Abscesses would sometimes occur, even in the cases where we had done our most thorough, careful work, and when we think we have successfully filled to the very apex. We do not know the causes of these failures—it may be microbes, it may be chemical action. Our best students are at work on the question. The "successfully" filled roots that we extract, with their contents of gold, and lead, and wood, and gutta-percha, and oxy-chloride, and even cotton, tell the tale better than the words of the operator who "succeeds" every time in filling even the most tortuous canals. He commended highly the gold broaches introduced by Dr. Herbst last year.

Dr. Beach, of Clarksville, Tennessee—Did not approve of the idea expressed in the paper, of waiting ten days before removing the devitalized pulp, which would then be an offensive mass, with perhaps a very sensitive stump at the apex. He much preferred the plan of stabbing out the freshly exposed pulp with a peg of wood, as being much less painful to the patient and more promptly done. After an experience of seventeen years with lead points for root fillings, he preferred that to any other material. It was soft and would take the shape of the canal, while even if driven through the apex it will be encysted and cause no irritation.

Dr. A. Eubanks, of Birmingham, Alabama—Dries root-canals and cavities with alcohol, followed by chloroform.

Dr. Stockton, of New Jersey—Thought the liability to subsequent trouble from capped pulps almost inevitable. They were much safer taken out. If a patient was forwarned that it would "hurt a little," his anticipations would be so much worse than the reality that he would be pleasantly surprised at the ease of the operation of knocking out the freshly exposed pulps. He hoped the dental manufacturers would give us some means of holding compressed heated air in a reservoir, as it was invaluable in many cases.

Dr. Allport, of Chicago—Wished to thank Dr. Baldwin for his excellent paper. He would make but one criticism, which was in using the term "dead teeth" when pulpless teeth were intended. The tooth is not an isolated organ, but has a vital connection with the rest of the system, and even though the pulp be dead, the cementum is still nourished by the peridentium, with some anastamosis between the canaliculi of the cementum and the tubuli of the dentine. If the tooth was so treated that the contents of the tubuli would not decompose, it made but little difference what filling material was used. Heat was the best agent for the removal of moisture and gases, applied, not by means of the hot-air syringe, but by suitable instruments, the best being one holding a broach connected with a large bulb, the latter to be heated in the flame of the alcohol lamp, the heated broach to be applied to all parts of the cavity and root-canals till the liquid contents are boiled out. Peroxide of hydrogen will expel anything more that may remain. The tooth which is thus dried and purified, and with the apex sealed, is safe. The term alveolar abscess is misapplied in nineteen cases out of twenty. A true alveolar abscess occurs only where the gases form within the tubuli and pass through the cementum into the peridental membrane. Gas escaping from the apex follows the track of circulation, and does not in one case in a hundred form a true alveolar abscess. Because of the probable shrinkage of gutta percha, he prefers the semi-fluid oxy-chloride of zinc, coaxing it up into the canals with gold wrapped on a broach till it is forced in all directions, when the broach is withdrawn and the gold left in the canal.

Dr. McKellops—Said he would be willing to go to Chicago to see his young friend, Allport, make a tooth hot enough to "hiss" in the mouth.

Dr. Morgan—Said that the instrument with bulb and broach was identical with one used forty years ago to destroy pulps, burning them out as with fire.

Dr. Freeman, of Tennessee—Wished to ask those who had never used lead points in root-filling to go home and give it a fair trial and report their failures, if any, at the next annual meeting.

After some further discussion the subject was passed, and the Association adjourned to meet at 3 P. M.

(TO BE CONTINUED)

NEW JERSEY STATE DENTAL SOCIETY.

BY "FREE LANCE."*

When I started for the New Jersey Society I intended to write you quite fully concerning the meeting, for, as a Jerseyman born and bred, my heart was with them in everything. I found myself handicapped, however, because of their rule of retaining all essays for their own publication, not allowing the appearance of any papers, or the discussions thereon, in advance.

This rule seems to me very unwise, because, as the society publishes only once in three years, many things of importance at the time become stale, or lose their value by reason of the intrusion of fresher matter. However, in the light of the position this society occupies, and the amount of good work it has done, one ought not to quarrel with the methods that have given it success.

I did not pay enough attention to the work of each session to be able to give a thoroughly comprehensive resumé, anticipating access to the stenographer's report. But being barred out by reason of the rule mentioned, I will give you a few details only.

This was the seventeenth annual meeting, held at its regular time, the third Wednesday in July, and, as has been the custom for the last seven years, at the Coleman House, Asbury Park.

Early in the history of the society it traveled from place to place. Becoming older and more sedate, it made Leland's Ocean House, at Long Branch, its headquarters, until 1880, when it moved to Asbury Park. Nowhere on the Jersey coast can be found a room so well adapted to the various needs of a dental society as the ball-room in the Coleman House annex. It is on the second floor, occupying the entire floor, and as the building stands alone, connected only by a covered walk with the hotel, there is light on all sides. One can see at a glance the adaptability of such a room for clinics, exhibits, etc., etc.

The attendance this year, perhaps, was not as large as usual, as far as our own membership was concerned. This was to be expected,

* This letter was unavoidably crowded out of the last number.—EDITOR.

because of the extra attractions of the year in the way of dental meetings. The exhibits, however, were larger and better than ever. This was due, in the main, to the efforts made by Dr. Wm. P. Richards, who, as head of the Committee on Exhibits for some two or three years past, has made a decided success of that department.

The clinics were good, emphatically so, particularly those of Dr. C. C. Carroll, of Meadville, Pa.; Dr. Geo. Evans, of New York City; and Dr. H. A. Parr, of New York City. Dr. Evans was very thorough in all his work, showing how careful he was in the beginning to have the foundation perfect. He took great pains to have his interested listeners follow every step. His device for carrying heat to the extremities of the roots and insuring absolute dryness is very simple, but apparently very effective.

Dr. Parr, as is his custom, performed his work, crowning, from beginning to end, in a very rapid and artistic manner.

Others who gave clinics did equally as well, but I have no notes of their work.

Dr. Frank Abbott, and others, read papers on treatment of deciduous teeth, which elicited free and full discussion. Undoubtedly, in due time, an extended report may be made of these.

Dr. B. F. Luckey, of Paterson, read a very good paper on "Treatment of Abscesses, etc." The discussion thereon was prolonged, and brought out some very diverse views. While the main features of treatment were the same, the drugs to be used, the time to be occupied, and the material to fill with were matters of great difference. Dr. Abbott took exception to the drug used by Dr. Luckey. He argued strongly against iodoform.

Dr. Geo. Evans claimed that by his instrument he succeeded in getting the roots of the teeth so dry, that the iodoform was absorbed and the disinfection complete.

Dr. Abbott was positive in his assertion that no one, by Dr. Evans' method or otherwise, could get the tooth absolutely dry, and that the iodoform lost its power after a time. As I have said, the most opposite views were entertained, and nothing particularly new developed, but in it all the utmost courtesy and good feeling prevailed, and the discussion showed that the minds of many were thinking and studying after the *best* in all things.

Other papers were discussed in much the same manner and spirit of friendliness.

Dr. A. R. Eaton, as President, read a brief but incisive address, which contained some valuable suggestions.

The matter of contributions to the fund started by the First Judicial District Society in regard to the Bridge Patents came up in due time, and the Jersey dentists, with characteristic promptness, walked up to the secretary's desk and put down, not their names merely, but the cash therewith.

G. Carlton Brown, of Elizabeth, was made President, and Dr. Henry A. Hull, Vice-President. The Secretary, Meeker, and Treasurer, Geo. C. Brown, were re-elected as a matter of course.

Before I close this letter I want to ask if you know much of what are called "Pocket Clinics?"

Judging from what I saw and heard at Asbury Park, those who give such clinics were abroad quite numerously. If a gentleman agrees to clinic, has his name printed and sent broadcast to the profession, if able to be present, should he not do the best he could? If things are not in condition to enable him to complete the work, ought he not say so, and go as far as able with it, giving his audience the benefit of what instruction he can?

Some of those who were on the list performed all they had promised from beginning to end, and then took up other work, carrying it as far as time would allow.

Others started their work, and finding themselves unable to finish, explained what they had done to those in attendance, and gave the reason for their inability to complete the operation. Still others, without explanation, refused to clinic, but tried to make appointments at their own offices with the patients obtained for them by others, and failing in this, walked off home. I have seen quite enough of this for a life-time.

There were present at the meeting the usual types. We had the dentist who has carefully announced in his local papers that Dr. So-and-So was in attendance upon the State Dental Society, but who put in all his time at the Long Branch race-course.

Then we had the genuine student, who came there to learn, and who by no amount of coaxing could be induced to take up the role of teacher, though sometimes well qualified for the work. Then there was the man who is always on his feet, no matter what the subject in hand. But I need not sum them up. You have seen them all, for they are present at every dental meeting.

Editorial.

THE CONGRESS.

The Ninth International Medical Congress is now a thing of the past. In attempting anything like a review of the work done by it, one is met by many embarrassments. The dissensions connected with its organization handicapped it from the start. There is no denying the fact that the list of those who became disaffected contained a large proportion of the names which, in medicine, were the best known in Europe and America. It was worse than folly to assert that they would not be missed, or that a Congress without their aid could be as successful as if their coöperation were secured. The revolutionary proceedings at New Orleans, in 1885, put the management in the hands of the West and South, but it forfeited the support of the East, and without that section a really great representation, either in point of numbers or influence, could not be expected from across the seas. Ah! What might not the Ninth Medical Congress have done had not some of the best men in medicine been unnecessarily alienated?

Yet, despite these drawbacks, so unnecessary and so damaging, the meeting was a comparative success. Those who became responsible put forth their most earnest efforts, and worked with a zeal and determination that could not but bear fruit. The number in attendance was not overwhelmingly large, yet it was something more than respectable. There were few names of commanding eminence upon the list, but there were very many who occupy a high position in medicine. The Congress was not composed of acknowledged scientists, but it was mainly made up of intellectual and intelligent men. There were no papers read which will challenge the attention of the world, but there were many that were instructive and thoughtful. Neither in point of numbers in attendance, nor scientific value in the results attained, was it equal to the London meeting of 1881, but it excelled most of the other meetings which have been held. There was practically no restriction upon membership, and any one who chose to invest the ten dollars was permitted to register, yet fewer acknowledged quacks and irregulars availed themselves of the privilege than might have been expected. The total registration was 2,755. That of the London meeting, the largest ever held, was 3,182.

But if there was any difference of opinion concerning the literary and scientific value of the meeting, no one questions its social success. The good feeling and cordiality was very pronounced. The receptions and conversaziones, the garden parties and dinners, were numerous and thoroughly enjoyed. Then there was the excursion to Mount Vernon, upon Government steamers, and the grand excursion tendered to foreign members, from Washington to Niagara and return, all expenses being paid. This was equal to an excursion from London to the Trosachs, had such been given in 1881. The only social regret was that no one had time enough to make the most of the many enjoyable occasions.

The Dental and Oral Section was the largest in the Congress; its sessions were more largely attended, it did more work, and raised and expended more money than any other of the eighteen sections. Nearly 500 persons were registered in this Section alone. At its opening session 420 persons were present by actual count, and the daily average of attendance was 180. Some of the other sections were, at times, obliged to adjourn for want of a sufficient number to make up a meeting. Eleven regular sessions of the dental section were held, and there was never any lack of work to do. Besides all this, the Section held daily clinics, at which from twenty to fifty operators demonstrated.

The general summing up of the work accomplished by the Section shows something to be regretted, and much for which it is to be congratulated. A very few of the worst of the advertising dentists of the country gained admission; but that was not the fault of the Section, for its officers begged permission to station with the general secretary one of its own secretaries, that he might scrutinize those dentists who applied, and thus avoid the intrusion of men who would bring discredit upon us, but this very proper petition was denied. Apparently, the general management wanted as many dollars as were to be obtained, and was not over particular as to who tendered them.

The work of the Section Committees was generally well done. The finances were admirably managed, and that committee deserves the highest commendation. The Reception Committee did little until the second day of the meeting, but after that it attended carefully to its duties. The Clinic Committees accomplished their task admirably, and the chief interest of the meeting was in the

work done at the Franklin School building. The rooms for meetings were exceedingly well selected, and nothing could have been better adapted to the purpose of the mechanical and operative displays than the school building engaged, from which all the seats and desks in the different rooms of the three stories had been removed. There was, however, at times, a scarcity of patients for the operative department. The Committee of Supervision proved to be an embarrassment and an encumbrance, and was at once abolished by general consent.

The entertainments consisted of banquets, receptions. excursions and conversaziones. Section XVII gave excursions, receptions, dinners and lunches to its foreign guests, aside from those of the general Congress, and altogether, those from foreign countries who did us the honor to visit us, had no occasion to complain of neglect.

It was, perhaps, to be expected that those who had some ulterior object in writing a paper should be the first to offer themselves, and accordingly there was some mercantile object very plainly perceptible in more than one of the essays. All the papers were said to have been submitted to the criticism of a committee empowered to accept, reject, condense or edit them. We do not know who, if any one, served upon this committee, but we must say that the results deserved the severest reprobation. The veriest trash was admitted, and papers whose advertising objects were scarcely veiled. Precious time was wasted over masses of verbiage in which the few ideas were as two grains of wheat hid in two bushels of chaff. Excellent and scholarly essays were either excluded altogether, read by title, or squeezed into the last few moments of the meeting, while long and tiresome disquisitions, of which only an abstract should have been admitted, were read and discussed at full length.

The meeting needed a firm, strong, resolute governing hand, that should sternly exclude irrelevant matter and hold it strictly and unwaveringly to the consideration of the point before it. But despite these drawbacks, some of which were unavoidable, there is no doubt that the influence of the meeting will be powerful for good. The general tone was excellent, and we do not believe that one person attended it who did not come away with an increased respect for his profession and a firm determination to labor for its advancement. Perfection was not to be expected, and while an honest sense of duty compels criticism upon some points, a sincere exultation in

what of good was accomplished will always enable every member to recollect with pride that he too was a member of the Ninth International Medical Congress. But the results obtained were not secured without great labor, and Dr. Taft and the Secretaries, with many of the Vice-Presidents and members of the Council, whom to name would be invidious, deserve the thanks of all dentists for their unwearied efforts to promote the interests of the Congress and the Section. It is not probable that in America the intimate relation existing between dentistry and medicine will ever again be disputed, nor will regular graduates in dentistry ever again be excluded from any important medical meeting, and this result will repay all the toil and expense attendant upon the late memorable meeting.

OUR BRETHREN ACROSS THE LINE.

A prominent dentist of Ontario writes us that, so far as regarded the organization of the Congress, "the dental profession of Ontario has been absolutely ignored." In answering his letter, may we not, without offense, say a word to our brethren of the Upper Province, for the remarks we desire to make do not apply to the Lower Province of Quebec.

If the dentists of Ontario were not consulted about the organization of the Dental Section of the Congress, was there not a reason for it? Where were the authorities to find a man who has sufficiently identified himself with society work to warrant placing him upon the list of officers? The dentists of the Province of Quebec were recognized by nominating one of their number as a Vice-President, although he did not attend the meeting. But Ontario, with its five hundred dentists, is without a dental society, without a literature of its own, and practically without membership in any of our societies. As often as every third year the American Dental Association has met upon the border line, as near to Canada as it could possibly get, but not one member of the profession from Ontario has joined it, and very few indeed have shown themselves, for even a single session, at its meeings. Yet there is no reason why they may not become active members. How many in Ontario show any interest in American professional matters? Probably they need, and can be benefited by society meetings as much as we can be, and if this be not the case, there is most assuredly a crying necessity for their presence on our own account. Professional lines should not

follow territorial boundaries, for science knows no bourn, no State limit.

Ontario has no professional journal of its own, and when one was established by men who desired to be progressive, despite chilly surroundings, Dr. Chittenden, of Hamilton, was left to carry the Ontario end alone, for it met with no support worthy the name.

The impression in the United States is too general, that for some reason the Ontario dentists do not desire any close relationship with us ; that when the law was enacted it was so framed as to place in the hands of a few the control of professional matters in Ontario ; that it was desired to withdraw Ontario dentists from the influence of the profession here ; that the administration of affairs was so conducted as to discourage attendance upon American colleges, to the end that students should be forced into their own school—a perfectly legitimate action so long as the motives which prompted it were unselfish, but a course which tended to bring about an isolation.

It takes time and labor, aye, and money, to keep up societies and to support a respectable literature, and we on this side the great lakes devote considerable of each to the work, because we have a genuine love for our profession, and are not alone solicitous about what it shall bring us. As regards the late Congress, few can appreciate the amount of time and money that were freely devoted to it. But how much of either does any one imagine was received from Ontario ? Not a moment of the one or a cent of the other, so far as we know. Invitations would have been issued to the leading dentists, had not the necessity for them been forestalled by the action of the American Medical Association, but there was not a surface indication that such solicitations to attend would be accepted, or even be graciously received. Not that any one imagines Canadians to be boors, who were capable of receiving such invitations discourteously, but they had shown no sign of any interest in the matter.

Americans cannot be accused of a spirit of exclusiveness, for at the invitation of a single member from the Province of Quebec, one of our most important societies held its regular meeting in Montreal this summer, where the members were most royally entertained, and even now they are sighing for another chance to go. When has Ontario exhibited a like professional spirit ? It is those who show the possession of a friendly feeling that have many friends.

Let Ontario dentists exhibit a true professional spirit; let them actively engage in general professional work; let them show their interest in society matters by sustaining a society of their own, or attending in large numbers the meetings upon this side; let them indicate a genuine love for and interest in professional matters aside from the bread-and-butter aspect; let them mount dentistry as a Pegasus, and not ride it like a cart-horse, and our word for it they will often enough be called upon to share the counsels of the men who are actively engaged in general professional work.

We hope that no one will for a moment imagine that this is written in a carping or captious spirit. Some of our dearest friends live across the border, and no one better knows the signal ability, the real generosity and disinterestedness which exist beneath the crust of conventionality that veils the hearts of very many Ontario dentists. It is because of this knowledge, and because we know that they are not exhibiting themselves in the best light, because we wish to meet them more often, and because they are aware of our real regard for them, living so near them as we do, that we have ventured upon the endeavor to stir them up, and if the pole has a sharp point, perhaps it will be none the less effectual.

CONGRATULATORY.

Dr. W. D. Miller has successfully passed his examination (the so-called "rigorosum") for the medical degree of the German Empire, and emerged with the predicate "Magna cum Lauda," his record being fourteen out of a possible fifteen. The latter number is almost never attained, the highest mark of any other candidate this year being eight. Dr. Miller not only has the congratulations of his associates of THE INDEPENDENT PRACTITIONER, but his many other American friends will be glad to know of his distinguished success.

It is but natural that the graduates of American dental colleges should be looked upon with suspicion in Germany, and had so representative a man failed, it would have been a matter of reproach to and reflected discredit upon American dentistry. For this reason Dr. Miller has put forth every energy that he might pass with credit, and the work has absorbed the time that he gladly would have devoted to other studies. This journal has been deprived of the

benefit of his writings: but now that the trying ordeal is over, Dr. Miller proposes again to take up his line of special investigations, and our readers will have the first chance to reap the advantages to be derived therefrom.

AT WASHINGTON.

The members of Section XVII from abroad, as a body, reflected honor upon the profession of the countries of which they were representative. Prof. Dr. Busch, of the University of Berlin, was detained upon the ocean by stormy weather, and did not arrive until the third day. But he made a very favorable impression, and was most enthusiastically received when he presented the very remarkable collection of pathological anomalies in elephants' teeth before the Section.

Dr. J. E. Grevers, of Amsterdam, one of the State Examiners for Holland; Dr. Ernst Sjoberg, of Stockholm; Dr. W. B. McLeod, of Edinburgh; Dr. R. T. Stack, of Dublin; Drs. Woodhouse and Mummery, of England, and many others whose names amid the confused memories of the week have now escaped, but whose cheering presence was perceptibly felt at the meeting, were thrice welcome as giving a truly international character to the sessions, and as affording an opportunity for a return of the hospitalities which were so lavishly displayed for the benefit of the very much larger American delegation which attended the meeting in London.

SOCIETY OBJECTS.

The supposed object for which all dental societies exist is professional improvement, and unless they accomplish all that is within their power for the good of dentistry the members are certainly derelict to duty. Without a literature there can be no profession, for the very word presupposes knowledge generally diffused. It is the duty then, of every member who loves his profession, to do what he can for this spread of information. The society which keeps its knowledge confined within its own society circles, or which uses it to build up and sustain any selfish end or object, has no more of real professional spirit than had the old exclusive practitioners, who, in early days, kept their laboratory doors locked lest their brother might profit by association with them.

BIBLIOGRAPHICAL.

NINETEENTH CENTURY SENSE. THE PARADOX OF SPIRITUALISM. By JOHN DARBY. Philadelphia: J. B. Lippincott Company. 1887.

It is not probable that we violate any confidence in saying that "John Darby" is the *nom de plume* under which Prof. J. E. Garretson has put forth a number of charming non-professional volumes. The "Seybert Commission," which was the result of a fund left by a wealthy Philadelphian to provide for the expenses of a scientific examination of the claims of spiritualism, is familiar to most reading men, and this volume is in line of the prosecution of that work. It has proved a puzzle to the critics, and few of those to whom it has been sent have attempted anything like a review of it, perhaps because they did not comprehend its scope or fathom its true meaning, possibly, though not probably, because they felt the subject-matter beneath their notice. In any case, the work has not met with the attention which its real merits demand.

There is something strange in the subject of spiritualism, in that it seems to absorb every one who attempts its study. Either sensibly or insensibly they assume a peculiar dreamy, mystical manner when they write of it. They seem to become entirely pervaded by the indefiniteness of their theme. We usually expect that those who have devoted their lives to the investigation of physical matters will become impatient of metaphysics, and demand absolute demonstrations of proposed theories. They usually are realistic, and seldom give themselves up to abstract speculations. It is a matter of surprise, therefore, when we find one like Prof. Garretson attempting to solve a problem that is supposed to be beyond the realm of demonstration. More than that; he, one of the most exact, literal and precise of men, at once becomes recondite, abstruse and enigmatical.

To our apprehension, spiritualism belongs to the domain of the metaphysical. If there be anything in it save mere prestidigitation and sleight of hand, it belongs to the psychological rather than to the somatic school. All through the ages we have had the same outcroppings of the transcendental, appearing under one guise or another, but each one an attempt to comprehend the unfathomable.

Substantially the same speculations have appeared, and hypotheses have been presented differing rather in method than in essence, while the sects founded upon the several dreamings have been known as Gymnosophists in the East and in Africa, as Rosicrucians in Europe, and as Spiritualists in America. There is so much room in metaphysics for all kinds of speculation which it is impossible to disprove that it is little wonder that none of these occult theories have been entirely silenced. It is only when they step over the line which divides the known from the unknown that they are caught. Certain imprudent spiritualists have attempted physical miracles, and then they soon came to grief. As long as they stick to the domain of the unknowable, their assertions are as good as those of any one else, and cannot be disproved. They make mystical affirmations and appeal to the love for study of the marvelous, and in a discussion so familiar to them soon overwhelm the ordinary mind in a maze of unintelligibility. Then they attempt a physical proof, and get caught.

That the impression produced by the book has not met the expectations of its author, is partly the fault of the subject; for it is not the clear, concise and incisive declarations of the master in physics, but it becomes mystical in manner, inconclusive in statement and involved in language. We look for the demonstrations of the mathematician in him; we have the dreaming of the transcendentalist. The subject has overpowered him—it seems out of his domain. That he has proved himself as much a master of the mystical as he had of the positive does not alter the impression, for it seems foreign to him, because we have not known him, save as a physicist. Tyndall may be able to write an excellent novel based upon chivalric times, but for all that it would seem out of place for him, and the most of men would be disappointed with it.

The author of "Nineteenth Century Sense" has chosen a subject that is quite impossible to disprove. If any one were to assert that Mars is peopled with a race of anthropomorphous omniscient mortals, how would an opponent go about to disprove it, and to establish a negative? The proponent would have the advantage by making the first assertion and placing the opponent upon the defensive. If he were to stick to his assertion and simply reason upon it from his own standpoint, he is impregnable. But should he advance to the realm of the known and attempt to

establish his hypothesis by finite comparisons and definite illustrations, he takes ground upon which he can successfully be attacked. The spirit of the age is essentially practical, and it has little patience with abstract reasoning. We want what can be demonstrated. *Quod erat demonstrandum* is the summing up of it all.

To the average reader the book reaches its climax on page 40. Yet even that is tantalizing. *What* was the mechanism of the occult? Was the *confrère* the medium in the spiritual, or in the ironical sense? Was he a confederate, or himself deceived? If the whole was but a clever imposture, why the chapters on occult sciences? Was the whole investigation turned into a farce, or is there yet a mystery to be explained, and concerning which we are left in the dark? The book seems unsatisfactory and incomplete. Yet, notwithstanding all, the thoughtful reader will be fascinated with it, and will not be able to lay it down until it is finished. There is such a witchery in vain conjecture about the unknowable; there is such latitude given for metaphysical invention, and there is such enchantment in allowing the rein to fancy, that it is no wonder so many find the greatest charm in Shakespeare's "Tempest," and that the favorite books of children of all growths are Arabian Nights, Robinson Crusoe and Pilgrim's Progress. There is so much room just beyond the borders of the known, that actuality seems dwarfed and circumscribed in comparison.

Yet the very illimitability of the field makes its survey unsatisfactory and unprofitable to the exact mind. There is little to be gained from a disquisition upon the unknowable. Men like to feel the solid rock of demonstration under their feet, and hence, when an author to whom they have looked for substantial facts leads them astray by a phantasm, and presents a *non sequitur* as the summing up of the whole, it is not to be wondered at if they drop all his subtle and ingenious reasonings and turn from his beautiful imagery to more tangible, if less dazzling themes.

We are glad to know that the lack of apprehension of the present work has stimulated the author to the writing of another, which is to be as a ladder leading to it, and which shall have its feet so planted in actuality that there shall be no mistaking its import or its reasoning. In the light of the promised book the first will well be worth a careful study.

Current News and Opinion.

"THE WORLD MOVES."

In the course of a brief conversation with President Davis, of the International Medical Congress, during its recent session in Washington, after congratulations and expressions of satisfaction at the success of the meetings, reference was made to the apathy or indifference manifested by certain prominent physicians in New York and Philadelphia, who not only refused to give their aid and presence to further the interests of the Congress, but in some instances used their influence to defeat its objects, in hopes to make it a failure. "Well, the world still moves" remarked the worthy President, "and their loss is greater than ours." Without their aid, and despite their wet blanket treatment, the Congress made its mark of success as every person who attended will testify, and all who have read reports of its deliberations must be convinced.

In regard to the controversies and factional wrangles for control of the Ninth Congress during the period of its inception, we have here no criticism to make. So long as the fact was settled that the Congress would meet in Washington at a fixed time, all sectional interests and party feelings should have been held in restraint, and all parties should have used their best efforts to make the meeting of the Congress worthy of our country, and thus show to the world the great strength and excellent standing of the Medical Profession of America.

Such occasions seldom come to us, and surely the outcroppings of jealousy in the contests of rivalry should not have been so sorely manifested. "Rule or ruin," is a poor motto. It is a sacrafice of everything for the glory of one's self; a disregard of the feelings of others and the general good of mankind. In its results it is like the policy of excising the nasal protuberance in order to spite the countenance. "More's the pity!" C. E. F.

THE ORIGIN OF EROSIONS ON THE CROWNS OF TEETH.

Prof. Busch, as a result of his experience, believes that defects in the enamel of the teeth, which is commonly known as erosions, are due to certain laws, not only with reference to their localization upon the crown, but also with reference to their occurrence upon particular teeth in the set. These furrows and depressions affect only the superficial portions of the crown, while the part which is near the root may always retain its normal consistency. These erosions never affect a single tooth or several teeth without any regard to position or other conditions, but always affect, in any given case, those which are developed in the jaw at the same period, and hence those groups are most frequently and most decidedly affected whose crowns develop earliest. The first molar stands foremost in the list, its crown being partly developed as early as the time of birth. The incisors and canines come next, their crowns developing during the first few months of life. The bicuspids are seldom eroded, their crowns developing, for the first, at the end of the second year of life, for the second, a year later. The last two molars, the crown of the first of which begins to develop at the end of the fourth year, and the second between the eighth and ninth years, are always free from

erosions. The milk-teeth may be of irregular form and bad structure, but they never show the peculiarity of the erosion. Hutchinson's assumption that erosions are attributable to syphilis is considered unwarranted, as otherwise they should appear upon the milk-teeth. That assumption also leaves unexplained the fact that the erosions appear upon particular groups of teeth, as has been already stated. They are also absent in many cases of undoubted hereditary syphilis and present in many individuals in which no trace of hereditary syphilis is discoverable. In hereditary syphilis, rachitis, and scrofula, the milk-teeth are apt to be soft and friable, but the erosions of the permanent teeth cannot be explained as peculiarities of those diseases. The author believes that they are the result of disease which affects the individual at the time that the crowns are beginning to develop. Among the diseases which may have such an influence, eclampsia, meningitis and severe attacks of choking, in consequence of whooping cough (for example), are mentioned. A single severe attack of convulsions in the first year of life might be sufficient to produce erosions on the teeth, the crowns of which were developing at that time. The theory is that the disease would cause a temporary suspension of the growth of the tooth, that it would soon begin again to grow vigorously, but that the interval would be marked by a furrow or erosion. After the first year of life cerebral disorders are much less frequent, and hence the infrequency of erosions upon teeth which are developed after that time. As erosions are believed to be so frequently caused by convulsive conditions, the author suggests the propriety of speaking of *teeth convulsions*. From one to two per cent. of all human beings have erosions on the teeth. A tendency to caries is manifest when they are present.

—*Archives of Pediatrics.*

SOUTHERN DENTAL ASSOCIATION.

The following named members were elected as officers for the coming year:

President—B. H. Catching, Atlanta, Ga.

First Vice-President—J. H. Prewitt, Madisonville, Ky.

Second Vice-President—W. N. Morrison, St. Louis, Mo.

Third Vice-President—J. Hall Moore, Richmond, Va.

Corresponding Secretary—J. Y. Crawford, Nashville, Tenn.

Recording Secretary—L. P. Dotterer, Charleston, S. C.

Treasurer—H. S. Lowrance, Athens, Ga.

Executive Committee—Drs. Edwards and Doyle, Louisville, Ky., W. Dancy, Jacksonville, Fla.

Place of meeting, Louisville, Ky., in joint session with American Dental Association.

Time of meeting, fourth Tuesday in August. All details left to Joint Committee.

OHIO STATE DENTAL SOCIETY.

The next annual meeting of the Ohio State Dental Society will be held in Springfield, on Wednesday, October 26th, and continue three days.

J. R. Callahan, Secretary.

UNION DENTAL CONVENTION.

The nineteenth annual dental convention of the Seventh and Eighth District Dental Societies will occur on Tuesday, October 25th, in Buffalo.

This year the Sixth District Dental Society will unite in the convention, and assurances have been received that a large delegation from the Fifth District Society will be in attendance also.

The sessions of the convention will be held in the new Library Building, and the committee express with great confidence the conviction that the occasion will be more profitable and interesting than usual. Some new features are contemplated, but complete arrangements are not yet perfected.

The circular giving full particulars will soon be issued. Let all attend who can.

FIFTH DISTRICT DENTAL SOCIETY.

The Fifth District Dental Society of the State of New York will hold its nineteenth semi-annual meeting at Syracuse, Tuesday and Wednesday, October 11 and 12, 1887. The session will be called to order at 2 P. M. at the Vanderbilt House. Applications for membership in the society should be made on or before the day of meeting to the Chairman of the Board of Censors, or to the Recording Secretary. The Board of Censors will be in attendance to examine candidates for admission to the society. Members of the profession from other societies are cordially invited to be present and take part in the discussions.

C. J. PETERS, Rec. Sec.

NEW ENGLAND DENTAL SOCIETY.

The next meeting of the New England Dental Society will be held in Boston, on Wednesday, Thursday, and Friday, the 5th, 6th and 7th of October. As this is its twenty-fifth anniversary, the society proposes to celebrate its silver wedding by a large and interesting gathering. A M. DUDLEY, Sec'y.

CONNECTICUT VALLEY DENTAL SOCIETY.

The Connecticut Valley Dental Society will hold its next annual meeting at Hotel Warwick, Springfield, Mass., October 27th and 28th. A cordial invitation is extended to all dentists. GEO. A. MAXFIELD, D. D. S., Sec'y.

ORIENT!

An opportunity is offered to secure the dental practice at a foreign court. The applicant must be an American dentist, first-class in every respect.

Particulars by addressing P. L. FOOTE, D. D. S.,
Poughkeepsie, N. Y.

DR. H. W. PARSONS, of Wamego, Kansas, exhibited at the Congress a number of ingenious contrivances, among which were an air pump to be attached to the dental engine, and which worked a saliva ejector, a hot air injector and a chip blower. If the hot air injector is as practical as it appeared to be, it will supply a decided want, for the present tendency is toward the use of hot air as the most effectual obtundent for sensitive dentine.

The National Association of Dental Faculties met at the Ebbitt House, in Washington, on Saturday, Sept. 3d. The Association has accomplished good in the past, but there is much for it yet to do if it proposes to raise all the colleges represented to the standard recommended by the leading societies. In the past there has seemed to be a disposition to whitewash too freely. Leading schools have violated the code of agreement and departed from the established regulations with impunity. If the Association is to retain the confidence of the profession, it must hew to the line.

The officers elected for the ensuing year were:

President—A. O. Hunt, Iowa City.

Vice-President—Thos. Fillebrown, Portland, Me.

Secretary—J. E. Cravens, Indianapolis, Ind.

Treasurer—A. W. Harlan, Chicago, Ill.

Executive Committee—Frank Abbott, New York City; J. Taft, Cincinnati, O.; S. H. Guilford, Philadelphia, Pa.

We are pleased to announce the election of our old (not in years of age, but in length of friendship) friend, Dr. B. H. Catching, of Atlanta, Ga., editor of *The Southern Dental Journal*, to the presidential chair for the ensuing year. Especially is this gratifying on account of the many efforts of Dr. Catching in behalf of the Southern Dental Association, and also from the fact that a vain effort was made to elect to that position a gentleman who obtained his degree of D. D. S. from the so-called Delaware (University) College.—*American Journal Dental Science.*

This demands an explanation. Does the Southern Dental Association admit to membership dentists who have been caught holding boughten diplomas? Will it accept "graduates" of that filthy Delavan (Delaware?) fraud? We do not know who the gentleman referred to may be, but some one should rise and explain. The "Southern" is too representative an association, and is made up generally of men of too high professional character to rest under this stigma.

Apropos to the present Congress it may be interesting to note that the first International Medical Congress was held in Paris, in 1867; the second in Florence, in 1869; the third in Vienna, in 1873; the fourth in Brussels, in 1875; the fifth in Geneva, in 1877; the sixth in Amsterdam, in 1879; the seventh in London, in 1881; and the eighth in Copenhagen, in 1884. It was originally intended that the Congress should be held every second year, but at the meeting in London it was decided to hold the meeting once in three years. The Congress met this week for the first time on American soil. It will probably be many years before it will again cross to this side of the Atlantic.

Professor N. S. Shaler, whose articles on Earthquakes, Cyclones, and Forests in *Scribner's Magazine* have attracted wide attention, contributes to the October number of that periodical a similar paper on "Caverns and Cavern Life" which is richly illustrated.

There was no paper read before the Medical Congress which produced a more profound impression than the address of Prof. Mariano Semmola, of Naples, Italy, upon "Bacteriology." The paper will be found in full in the *New York Medical Journal.*

Prof. Busch, of the University of Berlin, made a most astonishing exhibition of pathological changes in the tusks of elephants. Such a collection, we are certain, was never made before. There were abscess cavities in the dentine, pulp nodules half-a-foot long, and many cases of so-called secondary dentine. He showed that he knew what he was talking about when he asserted that the points of the tusks in young elephants are covered with a plate of enamel. This was disputed by Dr. Atkinson, who intimated that the professor meant eels when he said elephants, but who had nothing to say in response when Prof. Busch produced an indisputable specimen.

Dr. William C. Wile, who removed from Newtown, Conn , to Philadelphia to occupy the chair of Electro-Theraputics and Nervous Diseases in the Medico-Chirurgical College of Philadelphia, and who became one of its editors upon the establishment of *The Medical Register*, has dissolved those connections and formed a new one—a matrimonial one—and will give up all for domesticity. He will settle near the former home of his bride, in Danbury, Conn. That wife must be a charming one, to overcome the wishes of a whole profession. Dr. Shoemaker assumes sole charge of *The Register*, and he is quite equal to the task.

Dr. N. A Randolph, the senior editor of the Philadelphia *Medical and Surgical Reporter*, was drowned at Atlantic City in the endeavor to save the life of another on August 21st. Dr. Randolph had undertaken a very difficult task, that of succeeding the brilliant Dr. D. G. Brinton as senior editor of the *Reporter*, and had, in connection with Dr. Dulles, scored a decided success. His death is greatly regretted.

Frank W. Sage, D. D. S., has for two years been the dental editor of *The Cincinnati Medical and Dental Journal*, and he has always filled his department with fresh and readable matter. In the last number we notice with regret the announcement that he has severed his connection with that journal, and that hereafter it will be under the charge of another.

Dr. Geo. H. Cushing has accepted the chair of Principles and Practice of Dentistry in the Chicago Dental College, and will enter upon the discharge of his duties at once. His long experience as a practitioner and his deep interest in educational matters admirably qualify him for the work of a teacher.

The next meeting of the American Dental Association will be held in connection with the Southern Dental Association, at Louisville, Ky., on the fourth Tuesday in August, 1888. This should make the largest and most influential gathering of dentists which America has yet seen.

The Medical Register of Philadelphia issued a daily edition during the meeting of the International Congress, and the series gives a very accurate *resumé* of the proceedings. They will be valuable for future reference.

The Tenth International Medical Congress will meet in Berlin in 1890.

A PHARMACEUTICAL SPECIALTY FOR DENTISTS.

LISTERINE.

FORMULA.—Listerine is the essential antiseptic constituent of Thyme, Eucalyptus, Baptisia, Gaultheria and Mentha Arvensis, in combination. Each fluid drachm also contains two grains of refined and purified Benzo-boracic Acid.

DOSE.—Internally: One teaspoonful three or more times a day (as indicated), either full strength or diluted with water, or in combination with other drugs. As a local application to ulcers, wounds and abscesses, or as a gargle, mouth-wash, inhalant or injection, it can be used ad libitum, diluted as necessary for varied conditions.

Antiseptic, Prophylactic, Deodorant, Non-Toxic, Non-Irritant, Non-Escharotic, Absolutely Safe, Agreeable, Scientific, and Strictly Professional.

LISTERINE is a well-proven antiseptic agent — an antizymotic — especially adapted to internal use and to make and maintain surgical cleanliness — asepsis — in the treatment of all parts of the human body, whether by spray, irrigation, atomization, or simple local application, and therefore characterized by its particular adaptability to the field of preventive medicine — individual prophylaxis,

AND THE REQUIREMENTS OF GENERAL

DENTAL + PRACTICE

LISTERINE IS A

Perfect Tooth and Mouth Wash,

NON-SECRET AND PROFESSIONAL,

And therefore has received the Highest Recognition as the Best General Antiseptic for a

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Dentists interested in LISTERINE will please send us their address, and receive by return mail, post-paid, our new and complete pamphlet of 36 quarto pages, embodying

A TABULATED EXHIBIT of the Action of LISTERINE upon inert Laboratory Compounds;

FULL AND EXHAUSTIVE REPORTS and Clinical Observations from all sources, both Medical and Dental, comfirming the utility of LISTERINE as a general Antiseptic for both Internal and External use; and particularly

MICROSCOPIC OBSERVATIONS, showing the comparative value and availability of various Antiseptics in the treatment of Diseases of the Oral Cavity, by W. D. Miller, A. B., Ph. D., D. D. S., Prof. of Operative and Clinical Dentistry, University of Berlin, from whose deductions LISTERINE appears to be the most acceptable prophylactic for the care and preservation of the teeth.

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Professor T. C. Stellwagen, 1627 Chestnut St., Phila.

Professor J. E. Garretson, (for oral surgical appliances,) 1537 Chestnut St., Phila.

Dr. M. H. Cryer, 1423 Chestnut St., Phila., and others.

4-7-AN-1/6.

Announcement!

In reply to numerous inquiries in regard to my MECHANICAL MALLET and ENGINE (foot and suspension), that have been in successful operation for the past two years, I beg to state they will be placed upon the market in the autumn or early winter. Orders may be sent in for same, and they will be filled in rotation, as received.

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Is made with great care, by perfected machinery, of which process WE ARE THE SOLE OWNERS AND OPERATORS IN THIS COUNTRY, and our product is guaranteed to be fluffier and lighter than any other make.

DENTAL ABSORBENT COTTONS.

Borated, Salicylated, Styptic and all other Medications. Perfect quality highly absorbent, superior to all competitive brands.

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We would also direct your attention to HYDRONAPHTHOL, the new antiseptic and disinfectant. It is odorless, non-poisonous, non-corrosive and tasteless. Is freely soluble in alcohol, ether, benzol, glycerine and fixed oils; twelve times as efficient as carbolic acid and three times as potent as salicylic acid. It is anæsthetic and soothing in its local effects, hence is especially recommended for treating sensitive dental cavities, abscesses, etc., etc. HYDRONAPHTHOL can be had incorporated in our Absorbent Cotton bandages, Jute, or any desired Surgical Dressing that can be rendered antiseptic.

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We have established an office for the sale of our

MINERAL TEETH

Dental Rubbers, Forceps, Etc.,

AT

No. 30 East 14th Street,

NEW YORK CITY,

And have in stock a full assortment of

FLAT TEETH for Metal Plate, and Crown and Bridge Work.
VULCANITE TEETH.
TUBE TEETH for Metal Plate and Pivoting.
Pinless, Dovetail and Open Crown for Vulcanite.

We desire to draw attention to the following: Our Improved Pink, New Pink, Whalebone, Flexible Base, Dark Elastic, Orange, Dark Brown and Improved Black Rubbers.

Phosphate and Rock Cement.
Sullivan's and Stewart's Copper Amalgam.
Ladmore Brunton Clamp, Key and Matrices.
Baldock's Improved Nerve Paste.
Stubb's Separating Files and Tools.
Jacob's Gutta Percha Stopping.
Steuts' Modelling Composition, Amalgams, Forceps, Pivoting and Filling Instruments, Impression Trays, Barbed Nerve Extractors, Corundum, etc., etc.

Catalogues mailed on application.

Our MINERAL TEETH

Possess the following desirable qualities.

1. NATURAL FORMS—

   In great variety and of various sizes and lengths.

2. COLOURS—

   Ranging from very light to very dark shades, and closely resembling the various colours of the human teeth.

3. TEXTURE—

   Non-porous, so that they can be *ground* and *polished* to suit particular cases, therefore being well adapted for Bridge work.

4. STRENGTH—

   Possessing unusual strength on account of their fine and close texture.

5. SOLDERING—

   Bearing in an extraordinary manner the sudden transitions of temperature, so that they can be *soldered without cracking.* Our representative received corroborative evidence of this fact from many of the most prominent dentists in the United States.

CAUTION—

Some unprincipled dealers in the United States are selling imitations of our pinless teeth as our make. Dentists can easily detect the imitation, from the very rough finish and inferior coloring of these teeth.

Our DENTAL RUBBERS

Are much esteemed for their *purity, strength and solidity.*

Professor Attfield, F. C. S., who has put our Dental Rubbers to severe tests in order to settle the question of such a possibility, thus concludes his exhaustive report upon them: "I am of opinion that the vulcanite teeth-plates made from your Rubbers are practically unaffected by saliva or by any substance which ever gains access to the mouth; and, in short, that the pink and red vulcanite gums and palates are absolutely harmless."

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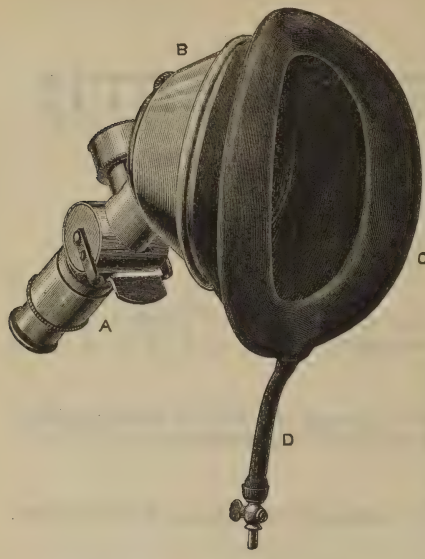

Fig. 116. This is the latest form of Inhaler made by us. and by many it is deemed the best. The inflated rubber hood *C* can be pressed close to the face, and yet is so yielding as to cause no unpleasant feeling. The metal shield *B* preserves the shape of the rubber hood. By means of the tube *D* the hood may be more or less inflated, as the dentist may find best adapted to special cases. The faucet *A* is the same as in all our Inhalers, and those having either of them can attach the parts *B* and *C* to the faucet they have, and thus make the complete instrument as shown in the cut.

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Price, Complete, . . $12.00.
Parts C and B, . . . 6.00.

In the manufacture and improvement of Inhalers for the Administration of Anæsthetics, we may rightfully claim to have taken the lead, and many competitors have paid us the highest possible compliment, that of imitating our instruments.

Having made these instruments a specialty, our customers may be sure that in every point of stock, workmanship and finish, they will be kept up to the highest standard.

For full description and illustrations of our various styles of Inhalers, see our Catalogue and Special circulars.

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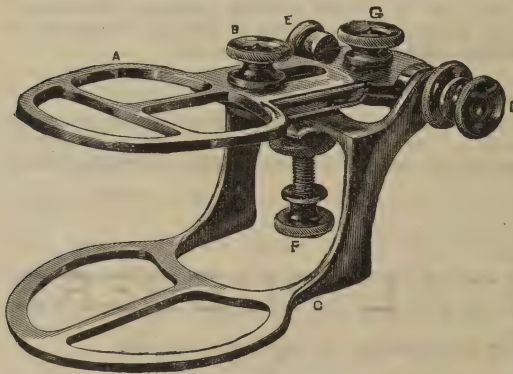
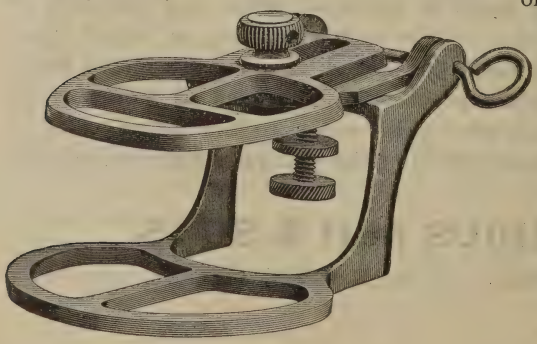


Price, Plain, ... $2.00.
Price, Plated, ... 2.50.

This is the latest, and we believe, all things considered, the best in the market. The upper jaw, *A*, slides backward and forward in grooves, so that by loosening the screw, *B*, this motion can be obtained without danger of lateral displacement. There is a second plate upon which the jaw, *A*, moves laterally, and is controlled by the screw, *G*, so that either of these important motions can be obtained entirely independent of the other. The screw, *F*, which adjusts the space between the jaws, *A* and *C*, is provided with a set-nut, which prevents it from unscrewing. The screws, *D* and *E*, which form the hinge, are cone-pointed, and furnished with set-nuts, so that the wear can be taken up, and the movement always kept accurate. On plate *A* there is a series of graduating marks by which the dentist can see just how much change he has made in the articulation.



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This Articulator is strong and well made, and in many respects superior to the cheap ones now sold. It is plated but not polished.

Price, . . 90 cents.

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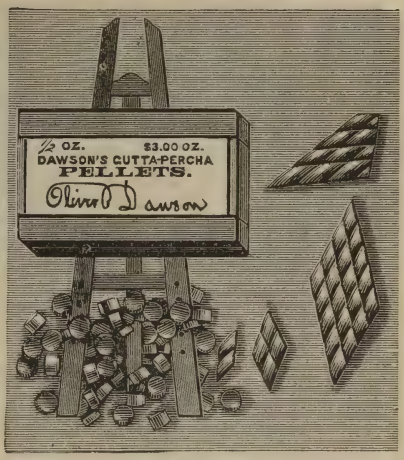

THIS CEMENT HAS NO EQUAL FOR ATTACHING CROWNS AND FILLING CARIOUS TEETH.

We are constantly receiving WORDS AND LETTERS OF PRAISE from the Profession, commending the* Superiority *of these Filling Materials.

Fine Instruments and Filling Materials

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THE VALUE OF MURDOCK'S LIQUID FOOD IS RECOGNIZED IN ALL COUNTRIES, AND IS INDORSED BY ALL NATIONAL MEDICAL SOCIETIES THAT HAVE INVESTIGATED ITS VALUE.

There never was an essay read before any Medical Society on Raw Food Extracts, except on Murdock's Liquid Food, and counterfeit manufacturers of Extracts have published many of our essays to show the value of their counterfeits.

Send for Essay and DISCUSSION before the British Medical Association at Brighton England, 1886, (Essay) by the Vice-President of The American Medical Association and others on the value of Murdock's Liquid Food over all Foods and Extracts known, it being the *only* Raw Condensed Food, free from insoluble matter.

Also essay read before the American Medical Association at Richmond, Virginia, and Washington, D. C.

Its value was recognized by the profession from results obtained in the Free Hospitals that have been established and supported by our Mr. A. L. Murdock during the last four years. They now equal

140 FREE BEDS.

and contain 38,000 feet of floor.

Our Liquid Food can be retained by the weakest stomach. Four tablespoonfuls daily will make eight per cent. new blood weekly. When used for infants, never change their food, but add five or more drops of Liquid Food at each feeding, and their lost or needed vitality will be restored in less than thirty days.

Send for the Report of the Chairman of the Section of Obstetrics of the American Institute of Homœopathy, read at Saratoga at the annual meeting of 1886.

Circulars were sent by him to all the Physicians in the United States, asking what their experience was with Murdock's Liquid Food in its use for infants under, as well as over, one year old.

Then what results, with all the different Milk preparations, Grain Foods, Peptonoid Foods and Beef Extracts, compared with Murdock's Liquid Food.

The Returns show that it is the Standard Food and Extract, as the percentage of lives restored was the largest when used.

We extract from the report. After calling attention to the fact that one-quarter of the homœopathic profession are accustomed frequently to prescribe this food for children less than a year old, as well as over, he remarks—

"It is singularly adapted to scrofulous, syphilitic, and tubercular constitutions, its life-restoring power manifesting itself in each with a relative clearness and power corresponding to the order of enumeration. For fair-haired children who are inclined to grow fleshy it is more symptomatically recommended, while Duncan's *acid* babies find it particularly useful. Accordingly it is chiefly employed for marasmus and anæmic conditions resulting either from non-assimilation of food or from simple summer complaints. Should a child vomit all milk food and suffer synchronously with diarrhœa or dysentery, the demand for this food is emphatic and unmistakable; also in general irritability of the stomach, particularly if there be sour-smelling diarrhœa, the food passing through undigested. For the prematurely born it stands pre-eminent. For those 'weak and debilitated from any cause, Murdock's Food is probably the best in the world.' Should any indication of cerebral hyperæmia appear, the quantity of food must be diminished; so, too, if after its protracted use, vomiting and diarrhœa ensue, the child has been overfed. *Should the taste or odor of any given bottle chance to be disagreeable, add water until they disappear, and let the purchaser congratulate himself upon getting more nutriment than he paid for.* When given in combination with milk in cases of indigestion, the quantity of milk should be diminished until all curds disappear from the stool, the quantity of Food, of course, being proportionately increased."

The Surgical Staff at Murdock's Free Hospital for Women are in daily attendance, except Saturdays, to examine patients and assign beds. **EVERY BED FREE.**

Our Free Surgical Hospital for Women, located on Huntington avenue, above West Chester park, contains fifty (50) beds, in charge of a staff of five surgeons, members of the Massachusetts Medical Society.

Our Free Surgical Hospital for Women, located on Gainsborough street, corner of Huntington avenue, contains 50 beds, in charge of a staff of five surgeons, members of the Massachusetts Homœopathic Medical Society.

Our Free Home for Homeless Boys contains 40 beds, and is located at 11 to 21 Causeway street. Many of these boys suffer from Scrofula, Eczema, and other skin diseases, which yield quickly by the use of our Liquid Food.

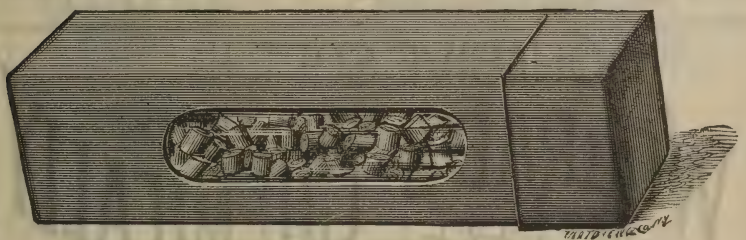
From the fact that no two beeves or sheep are alike is the reason of our different brands being different in flavor. All brands are made by the same formula. The letter represents the day of make, and the figure the tank.

If richer, it is stronger in smell and flavor, and will bear a greater reduction. It cannot be reduced so low but it will be superior to all other preparations in treating chronic cases.

If you cannot obtain Murdock's Liquid Food from your druggist, we deliver, free of express, 12 oz. for $1 00. Any physician that has not used our Liquid Food, we will deliver free to the Boston express 12 oz.

10-6-00-1 **MURDOCK'S LIQUID FOOD CO., BOSTON.**

EXTRA PLIABLE DECIMAL GOLD ROLLS.



(This Engraving represents a Phial of size 1 of the above designated Gold, inclosed in a Box.)

Gold Foil and Gold Rolls, per 1-10 ounce,	$3.00.	Per ounce,	$28.00
Extra Pliable Decimal Gold Rolls, per 1-10 ounce,	3.50.	Per ⅛ ounce,	17.00
Untrimmed Foil, per 1-5 ounce book,			5.50
Ideal Cement, per package, with Pigments,			1.00
Rowan's Ideal Alloy, No. 1, per 1 oz. $5.00, 2 ozs. $9.00, 4 ozs.			16.00
Rowan's Ideal Alloy, No. 2, per 1 oz. $3.00, 2 ozs. $5.50, 4 ozs.,			10.00
Tin Foil (our make), very tough, per book,			.50

Try some of our "Ideal" Cement Filling and "Ideal" Alloy.

Appended are testimonials for our preparations of Gold from well-known gentlemen:

I have used the Rolled Gold of Edward Rowan & Co., and like it very much. I prefer high numbers—30, 60 and 120—for facility of adaptation to walls of cavities, capacity to bear high annealing and making solid work, I know no superior make.

W. H. ATKINSON,
October 23, 1882. 41 E. 9th Street, N. Y.

271 N. Eutaw Street. BALTIMORE, Md., June 5th, 1883.

GENTLEMEN—I have used nearly all of the last ounce of your "Extra Cohesive" Decimal Gold Foil No. 4, and it affords me pleasure to inform you that it has *proved* to be a *first-class article* in every respect. It is *cohesive* and *tough* in the *highest degree*, yet possessing *less harshness* than is usually found in cohesive foils. I cheerfully thus refer to it, and so long as you continue to make such foil, I want nothing better. Very respectfully,

JAS. H. HARRIS, M. D., D. D. S.

No. 100 Boylston Street. BOSTON, MASS., June 30, 1883.

SIRS—I have used your Rolled Gold for several years. When I wish to use *cohesive* gold, I prefer your No. 30 Rolled to any gold with which I am familiar. It is very tough, soft and cohesive. In short, pleasant and easy to work, and makes a compact, even and finished filling. Yours truly,

L. D. SHEPARD,
Late Professor of Operative Dentistry, Harvard University.

S. H. GUILFORD, A.M., D.D.S., (*Professor of Operative and Prosthetic Dentistry, Phila. Dental College,*) has permitted us to state that he uses and recommends our "Gold Rolls."

DR. H. J. MCKELLOPS, of St. Louis, writes us, under date September 16, 1884, "You may use my name in connection with your Gold with pleasure."

H. C. REGISTER, M. D., D. D. S., of Philadelphia, writes us, "You are permitted to use my name in recommending your Gold, as second to none in the world!"

CHAS. L. STEEL, M. D., D. D. S., of Richmond, Va. (*Demonstrator Operative Dentistry, University of Maryland*). DEAR SIRS—Your last ounce of Gold duly received, and, as usual, works superbly. I have used many makes of Cohesive Foil, but for some time past have confined myself to yours exclusively, as I find none other so near perfection.

A. H. FULLER, M. D., D. D. S. (*Professor of Operative Dentistry, Missouri Dental College*). Should you so desire you may state that I have been using your Gold for the past year or more, and find it first-class in every respect. Shall send you an order in a few days for more.

WM. CARR, M. D., 35 West 46th Street, New York, permits us to state that he endorses our Golds. He uses Nos. 3 and 4 soft; No. 60 Rolled; and Gold Rolls.

EDWARD ROWAN & CO.

No. 1048 Third Avenue, S. W. Corner 62d Street, New York.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

REFERENCES FURNISHED ON REQUEST.

C. A. TIMME & CO. Importers of

CASH MUST ACCOMPANY THE ORDER.

CUT OUT AND ENVELOPE

COHESIVE, SOFT №

WOLRAB'S PURE CHEMICALLY

GOLD FOIL

C. A. TIMME & CO.

IMPORTERS of DENTISTS SPECIALTIES

SOLE AGENTS FOR THE U. S.

190 HUDSON ST. HOBOKEN N. J.

Foil, $4.00 per ⅛ oz., $15.00 per ½ oz., $30.00 per 1 oz.

On orders of two ounces and more at a time a reduction of 50 cents per ounce will be given.

This gold is made in reference to the HERBST method of filling teeth with the engine. It has also proven a very desirable article for the *mallet* and *hand-pressure*.

We claim it to be superior to any other make for its peculiar *softness*. It easily adapts itself to the walls of the cavity, and when properly manipulated it makes a *solid* and *cohesive filling*. If it is to be used cohesively, a slight *warming over* the flame will have the desired result.

Very good reports have been received from prominent practitioners.

Timme's Imported German Phosphate Cement, per box, $1.00.

SEND FOR PRICE LIST OF TEETH.

CASH MUST ACCOMPANY THE ORDER.

D 1/803

CELEBRATED

WOLRAB'S GERMAN GOLD.

№ 0 1 2 3 4

CHEMICALLY PURE

for the MADE EXPRESSLY of filling TEETH

HERBST METHOD

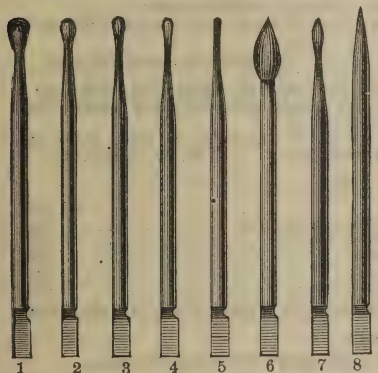
C. A. TIMME & Co IMPORTERS OF DENTISTS SPECIALTIES

HUDSON St. HOBOKEN N.J.

SOLE AGENTS FOR THE U.S.

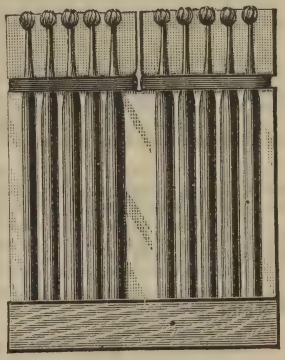
Cylinders, $4.50 per ⅛ oz., $17.00 per ½ oz., $34.00 per 1 oz.

Instruments for the Herbst Method



Made of Agate, per set, - - - $10.00
The same made of Steel, as shown in the cut, per set, - - - - 4.00

Imported Burs, Stone Cut.



Unequaled in temper, arranged on wooden cards, per card of ten, - - - $ 3.00
In boxes of ten cards, - - - 25.00

3-5-AN-2.

HARDMAN'S WHITE ALLOY

Takes the place of gold for filling front, or any teeth.

PRICE, $3.00 PER OZ.

Test for Color—Place a button of Amalgam, that has one surface polished, into a solution of 40 to 60 grs. of sulphuret of Pottassa in 1 oz. of water. Let remain 24 to 48 hours.

Test for Leakage—Fill a small glass test tube with it, just as you would a cavity in a tooth, and drop it into a bottle containing an alcoholic solution of red aniline.

This Alloy Stands These, and Any Other Tests Deemed Requisite to Perfection.

HARDMAN'S SUPERIOR AMALGAM

Surpasses all others for strength and density of texture. Use it for Crown Work, in Molars, &c.

PRICE REDUCED TO $4.00 PER OZ.

Large discounts on both of these in quantities.

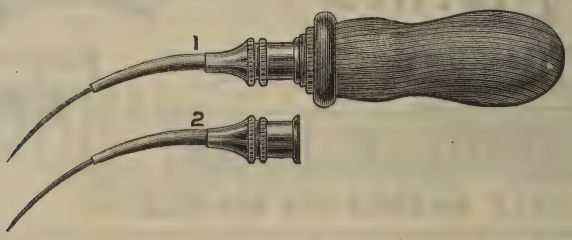
MADE AND FOR SALE BY

J. HARDMAN, MUSCATINE, IOWA.

If your depot does not keep them send to the proprietor for them.

8-4-AN-¼

DUNN'S MEDICINAL SYRINGE.



CUT ACTUAL SIZE.

Easily kept in order—ready and convenient for use.

It can be used with the utmost delicacy in the most sensitive parts.

Its light weight and ease of manipulating insures against the common expense and annoyance of breaking needles.

The mechanism is such as to give it the same force power as the Hypodermic.

Alveolar Abscess can be reached through a long sinus or fistulous track, syringed out, and medicaments injected with certainty and ease.

CHICAGO, Ill., April 7th, 1887.

J. Austin Dunn, D. D. S.:

DEAR SIR—The little Syringe which you left with me admirably meets a long felt want. I consider it the neatest instrument yet given to the profession for injecting remedies in Alveolar Abscess and pus pockets of Pyorrhœa Alveolaris.

Every operator should have several of them to avoid the necessity of using different preparations in the same instruments. Very truly yours, W. W. ALLPORT.

PRICE LIST.

No. 1, Syringe and Steel Needle	$1.50
No. 2, Extra Steel Needle, small, (for Pyorrhœa pockets)	.75
Or the two Needles and Syringe in one order	2.00
No. 1, Syringe with Platina and Gold Needle	3.00
No. 2, Extra Needle, small	2.25
Or the two Needles and Syringe in one order	5.00

The pure Platina Needle is easily bent and soon leaks, and it is thought best to discontinue their manufacture.

PATENT PENDING.

ON RECEIPT OF PRICE A SYRINGE WILL BE SENT BY RETURN MAIL.

J. AUSTIN DUNN, D. D. S.,

70 Dearborn Street, CHICAGO, ILL.

6-7-00-½.

E. KEARSING'S

COHESIVE AND SOFT

GOLD FOIL,

Used by many of the prominent dentists in this country and abroad.

——ALSO EXTRA FINE——

TIN FOIL AND AMALGAM.

MR. E. KEARSING, *Dear Sir:*—After having used your gold foil for five years, I can say that it gives me better satisfaction than any other that I have used. For restorations and all work where I greatly depend upon cohesive qualities it never fails.

Yours truly, A. H. SCOFIELD, D. D. S.,
113 W. 47th St., New York City.
September 8, 1884.

MR. E. KEARSING:—After using your gold foil about five years with great satisfaction, I feel that I cannot get along without it. It is especially valuable for small cavities, and for fine work in approximal cases. Respectfully, J. N. FARRAR.

MR. E. KEARSING, *Dear Sir:*—After having used your gold, both soft and cohesive, for nearly five years, I find it has given me entire satisfaction in all cases.

Yours truly, J. BOND LITTIG, D. D. S.,
113 W. 47th St., New York City
September 13, 1884.

Dear Sir:—After using your gold foil almost uninterruptedly for the last six years, I have no hesitation in stating that it stands without a rival for performing what are known as contour operations. It answers equally well for small fillings unannealed when properly manipulated. Very truly, H. C. LONGNECKER.
FLUSHING, L. I., Sept. 11, 1884.

E. KEARSING, ESQ., *Dear Sir:*—In reply to your inquiry about my opinion of the merits of your Gold Foil, I can say frankly, after having had over thirty years' acquaintance with it, that it works and wears beautifully. No gold foil ever had a better endorsement than that given your gold foil by the late Dr. Marshall H. Webb, whose elegant operations live to do honor to him and reward you. Your cohesive foil, No. 4, folded into 32 or 48, is daily giving me great satisfaction, being uniformly impacted from beginning to end of the filling with the Electric Plugger. Yours very truly, E. PARMLY BROWN.

101 HOYT STREET,

P. O. Box 182. BROOKLYN, N. Y.

7-4-AN-½

"THE OLD RELIABLE."

LAWRENCE'S AMALGAM.

RES NON VERBA
A. L.
LAWRENCE
TRADE MARK

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the Trade should be addressed accordingly.

Price, $3.00 per Ounce. For sale at all respectable Dental Depots.

Manufactured only by

AMBROSE LAWRENCE, M. D., 476 Columbus Avenue, Boston, Mass.

10-4-AN ¼

The Wilmington Dental Manufacturing Co.

MANUFACTURERS OF

ARTIFICIAL TEETH,

Nos. 1010 and 1012 KING STREET,

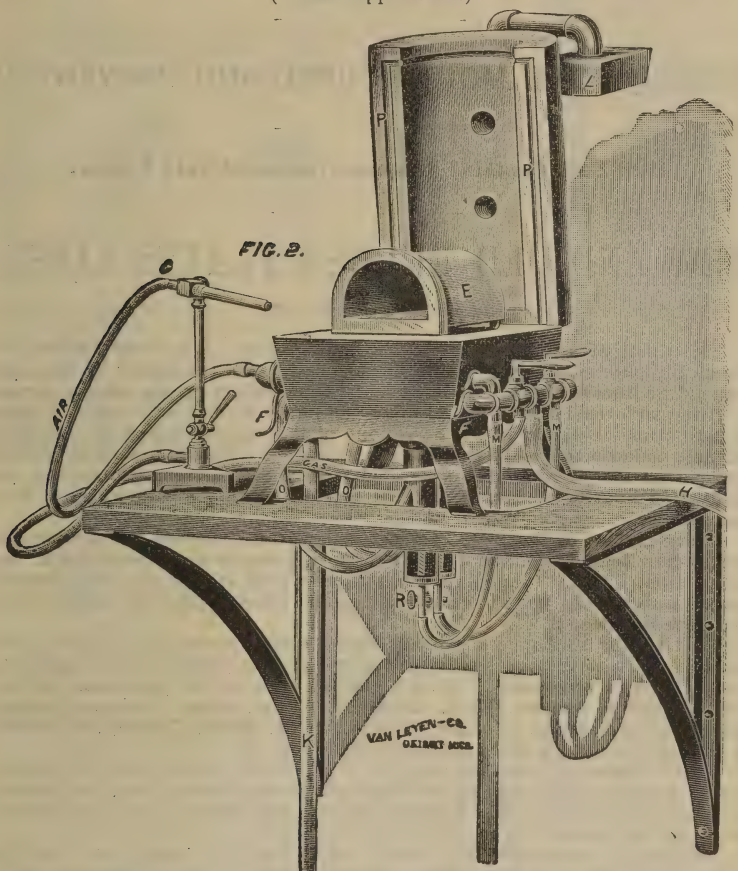
WILMINGTON, DELAWARE.

Having been justly recognized as manufacturing a very SUPERIOR TOOTH at a very moderate PRICE, they now avail themselves of this medium by which they hope to present their merits to the Dental Profession. They have now perfected their designs as to the character of their MODELS, and have fully succeeded in being able to present to the Dentist an opportunity to select a SHADE of enamel which will harmonize and correlate with that of the natural tooth.

☞ *For sale by Dental Dealers everywhere. Send for price list.*

DR. C. H. LAND'S
COMPOUND
GAS OR GASOLINE FURNACE

(Patent Applied for.)



Size No. 1, especially adapted for all kinds of muffle work, crucible work, blow-pipe work, forging and brazing. It is the most complete furnace ever devised for the chemist, assayer, jeweler, dentist and metallurgist. Continuous gum and porcelain can be baked in from 15 to 20 minutes in the most perfect manner and with unerring precision. Send for descriptive circular.

Instructions—In order to enable those who contemplate using gas furnaces and to comprehend their great superiority over coal or coke fires, my laboratory will be open free to all, and with those who desire a special course in continuous gum work, enamel metallic coatings and enamel fillings, favorable arrangements can be made. A visit to my laboratory will be of the utmost value. Here furnaces are operated by both foot and steam power, using either gas or gasoline. Thus practical working can be seen to the best advantage.

Address, **C. H. LAND, 264 Woodward Ave., Detroit, Mich.**

10-6-AN 1.

DALY'S CHEMICALLY PURE

GOLD LINING

RUBBER SORE MOUTH CURED AND PREVENTED

Each Book Contains 8 Square Inches of Gold Lining.

NEW AND OLD RUBBER PLATES LINED.

This lining presents advantages that no other can. It is formed entirely of chemically pure gold. It is united mechanically with the rubber of the plate without the intervention of any other metal or of rubber or any other cements.

Being so formed and so united there can be no tarnish or chemical change of state from the action of the secretions of the mouth, or from the effects of galvanic action between different metals in contact. Its union with the rubber is so perfect that it cannot be separated from it, and its removal involves the destruction both of the lining and the portion of rubber with which it is in contact.

Every surface of the plate can be lined with it if desired. Old plates, no matter how long worn, can be lined with it, preserving perfectly the fit and articulation. Being formed entirely of pure gold it will not only prevent rubber sore mouth, but will cure that disease, when applied to rubber plates that have produced it.

That rubber sore mouth prevails under rubber plates to an alarming and much greater extent than is generally appreciated, is proven by the testimony, based on actual observation, of such eminent men in our profession as Drs. Taft, Atkinson, Walker, Kulp, Dorrance, Cutler, Allen, Eames, Cushing, Morrison, Judd, Flagg, Younger, Sturgiss, H. A. Smith, Crouse, and others, as well as of members of the medical profession.

This testimony is found on record in the printed proceedings for the last twenty years of such bodies as The American Dental Association, The American Dental Convention, The Southern Dental Association, and many District and State Societies.

The cost of lining plates will be seen to be small by taking the price of a book of it and counting how many plates of different sizes can be covered by eight square inches of lining—the amount contained in each book. Full nstruction with each book.

Price per book, - - - - - - - $3.50.

DALY GOLD LINING DENTAL CO.,

AND ALL DENTAL DEPOTS. **WASHINGTON, D. C.**

10-6-an-1.

COMPOSITION
SILVER STRIPS.

(PATENT APPLIED FOR.)

Invention of Dr. E. Parmly Brown.

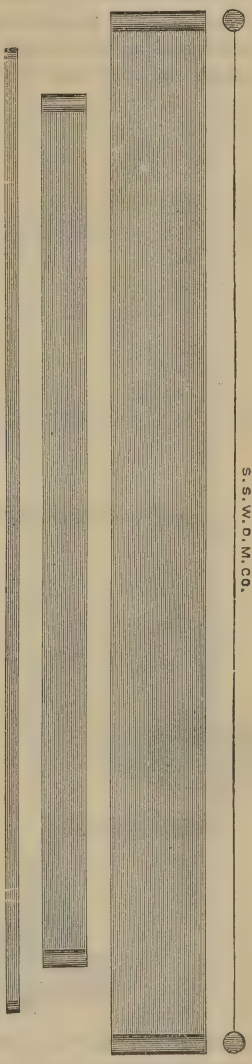
For dentists' use in polishing between the teeth and dressing approximal gold fillings.

To be used with wet pulverized pumice, or other suitable powder.

Can be smoothed out, after being used, by being drawn between the folds of a towel or over the edge of a table.

Put up in packages of one dozen, in a variety of sizes.

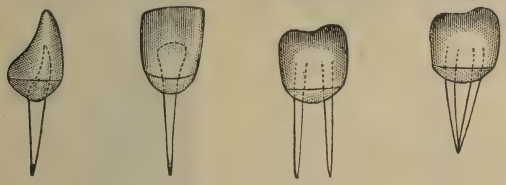
Price, ... per package, 50 cents.



DR. E. PARMLY BROWN'S TOOTH CROWNS.

PATENT APPLIED FOR.

FIG. 1. FIG. 2. FIG. 3. FIG. 4.



These cuts represent position and shape of pins in the tooth.

For full description, see *Dental Cosmos*, September, 1886, pages 583, 588 and 589.

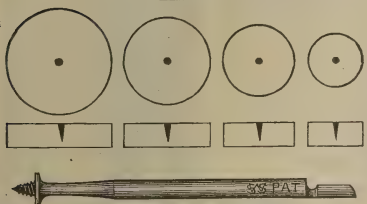
PRICES,

Brown's Tooth Crowns, . . . each 65 cents.

SOLD BY WELCH DENTAL CO.

MOOSE-HIDE POINTS FOR DENTAL ENGINE.

For Carrying Pumice or other Powders to Clean Teeth or Polish Fillings.



Designed and introduced by Dr. E Parmly Brown, who claims that these Moose-hide Points are more efficient than any other engine polisher heretofore offered to the profession. A moment's use when wet causes them to conform perfectly to the surfaces to which they are applied, when they become like a brush, passing readily between the teeth to the point of close contact. Their extreme toughness gives them a firm hold on the mandrel. They can be used on any screw mandrel, but a medium sized screw and a medium length of mandrel as shown in cut are recommended by Dr. Brown as most satisfactory. A thimbleful of pumice-powder should be mixed with water in a small dish, and into this the Point should be dipped from time to time. A fresh Point should, of course, be used for every case.

Put up in boxes containing thirty Points, assorted sizes.

Price, ... per box, 50 cents.

No Dental office should be without

DR. BROWN'S UNIVERSAL SCREW CLAMP,

(CLAMP AND KEY, Nickel-Plated, $4.00.)

His *Depressed Dental Rubber Dam* is now being manufactured thin, and of the very best quality of Rubber, put up in boxes of twenty,

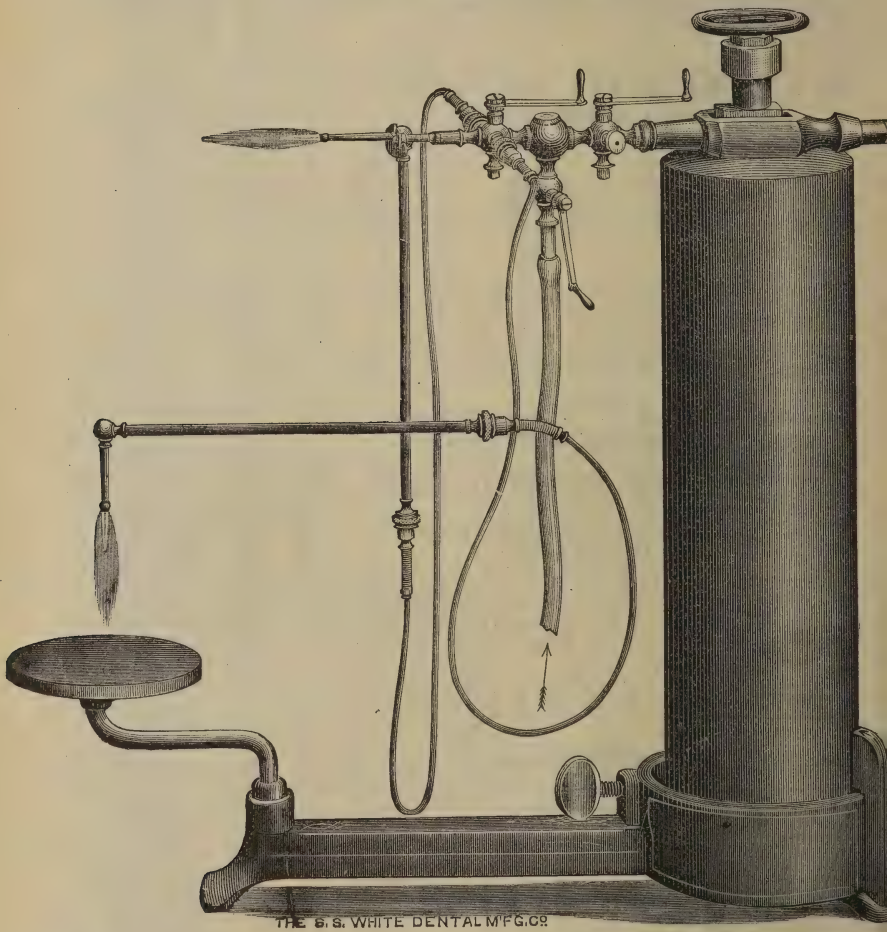
ONE DOLLAR PER BOX.

THE KNAPP BLOW-PIPE.

Invented by Dr. J. ROLLO KNAPP.

Patent applied for in England, France, Germany, and the United States.

This new Oxyhydrogen Blow-pipe consists of an iron stand in which is secured by a thumb-screw a 100-gallon cylinder of nitrous-oxide gas. By means of a yoke and set-screw the valve of the cylinder is connected with the tubes and valves of the blow-pipe in such manner that the proportions of the



mixture of nitrous-oxide and illuminating gases are under perfect regulation and control.

There are two pipe-nozzles, which may be used at the same time, or one at a time, according as a large or small flame may be desired. One pipe-nozzle is shown as hung upon its hook, and the other as if directed upon work held on the pivoted bracket-table. The largest piece of plate-work, the smallest piece of

crown-work, or the most delicate soldering with pure gold or its alloys can with equal facility and without exertion or over-heating on the part of the operator be accomplished in the least possible time by the use of this surprisingly effective, compact, and cleanly device. Dr. Knapp has been accustomed to do all his soldering of crown and bridge-work without leaving the operating-room. All the blow-pipe parts are nickel-plated, and the stand is tastefully japanned. The illustration is about one-third actual size. A detailed description with directions for use accompanies each apparatus sold.

Dr. H. W. Howe, Lawrence, Kansas, writes under date May 9, 1887: "It is perfect. I can solder anything from a full case of gold to a wire the size of a horse-hair. I fill caps and crowns for single teeth or bridge-work, as described by Dr. Knapp in the DENTAL COSMOS, perfectly satisfactorily to myself. In using both jets at one time on heavy cases of invested plate-work, the large flame for heating the case, the other to solder with, I am more than delighted with its perfect work.

"I can utilize my platinum scraps, by either mixing with gold, or melting the scrap platinum. I make solid bands for crown-work by simply jointing the edges nicely and touching with borax, add a little filings from the same piece and have no trouble in melting the joint into one solid piece of the same karat. As to this 'little giant,' I cannot express myself strongly enough to give you any idea of my appreciation of it."

Price, without Cylinder of Gas - - - - - - - $16.50

SURFACE COHESION FORMS FOR ARTIFICIAL DENTURES

Invention of Dr. Joseph Spyer. Patented January 6, 1885; December 8, 1885.

FIG. 1.

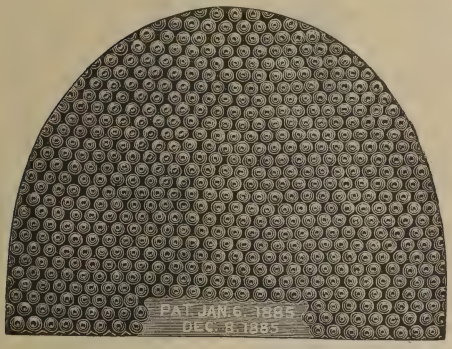
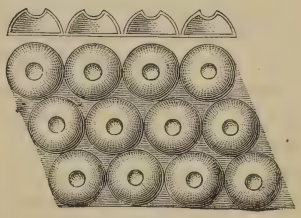


FIG. 2.



A thin metallic Form, the surface of which is covered with minute papilliform prominences—shown in Fig. 2 magnified four diameters—which by displacement of mucus at the points of gum contact effect surface cohesion as if the denture were glued to the gums, yet cause no irritation and leave no marked indentations. Adapted for either upper or lower plates. By the aid of this device strong cohesion can be had with a narrow plate, and thus the sense of taste be left unimpaired. Lower plates so made are very firm. Put up in packages containing one dozen Forms size of Fig. 1, which can be cut for either upper or lower plates. Full directions accompany each package.

Price - - - - per box containing one dozen Forms $1.00
Rubber Cement - - - per dozen $4.00; per bottle .35

These Forms are also made of Gold with a thin lining of Silver, similar to our Vulcan Gold Lining, and for like use. Thickness of No. 120 foil.

Price - - - - - - - - - - - - each $2.50

The Abbott Automatic Plugger.

PATENT APPLIED FOR.

This Plugger has both direct and back-action movements combined in one instrument, and is designed to avoid most of the defects found in other Automatic Pluggers.

The spindle, carrying the pivotal latch and tripping mechanism, together with the hammer, passes centrally entirely through the casing, and is socketed at both ends for bits, making one end direct or push-blow, while the other is a pull or back blow.

The force of the blow is regulated by the milled nose C, which is held in place by the holder D, which projects through the nose-piece, fitting into a circumferential groove. The two end pieces (or noses) unscrew from the tubular center casing, allowing the spindle carrying the mechanism to be removed.

Some of the improvements are :

1st. Less friction; no grating sound or rattling of springs.

2d. Less pressure required by the operator for the same force obtained.

3d. The mechanism is free from the case, it being mounted upon and guided by the spindle, thereby saving all friction on the case.

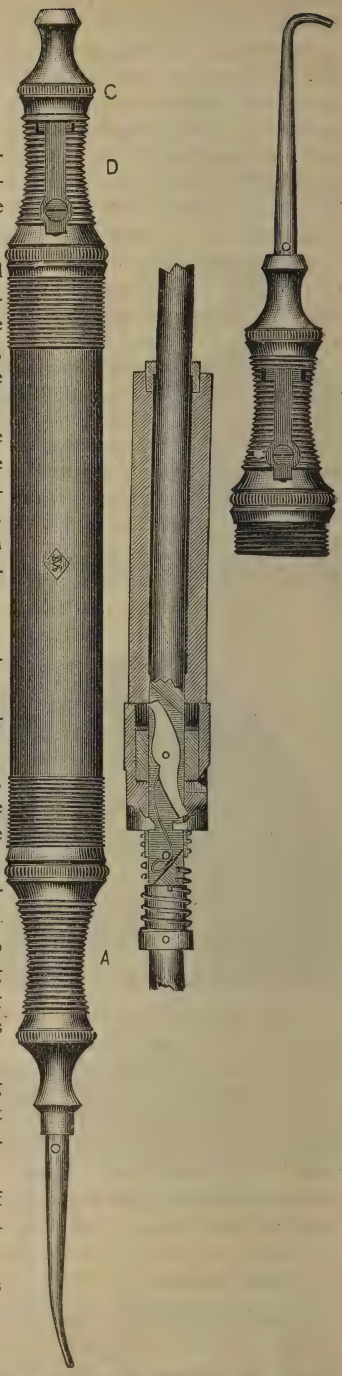
4th. A heavier hammer, with lighter springs, which has after long and careful experiments by many operators been found to be more efficient, and the hammer having hardened steel bushings as bearings, leaving the center free for the spindle to pass, reduces the friction to the minimum.

5th. The back-action movement being combined with the direct, in one instrument operated by the same mechanism, is therefore very much simplified.

All the parts liable to wear are made of hardened steel, and the instrument throughout is made in the very best manner.

Both the Cone-socket and Snow & Lewis Bits will fit the sockets.

Price, Nickel-plated, ... $9.00



THE S. S. WHITE DENTAL MANUF'G CO.

PHILADELPHIA, NEW YORK, BOSTON, CHICAGO, BROOKLYN.

UNIVERSAL SEPARATOR.

INVENTED BY DR. H. A. PARR.

Patented September 8, 1874; October 5, 1886.

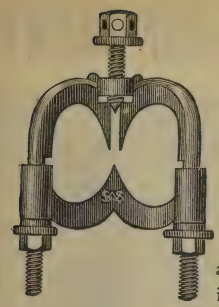
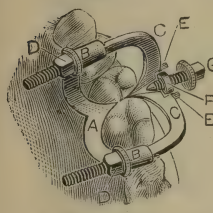


FIG. 1.



Dr. Parr claims that this Separator is universal in application and adjustment between teeth of all denominations in either jaw; it is therefore manufactured in a single form of the exact size of the cut. The mode of its application to teeth of all kinds is made obvious by the illustration Fig. 1. The Nuts D D can be moved with the thumb and finger, or the wrench, as required to force the wedging points between the teeth, and as the nuts move independently of each other, the arms can be more or less drawn to adapt the pressure to the varying curves of the teeth. Greater separating force will be obtained by turning the screw G.

With this device teeth may be regulated, or be held by wedges in the positions to which the Separator has forced them. It should prove of no small advantage that a single Separator will thus render practical service in every part of the mouth where two teeth are to be forced and held apart for any dental operation. For further description see report of First District Dental Society of New York in DENTAL COSMOS for August, 1886, page 509.

PRICE.

Universal Separator with Wrench, . . . $7.50.

GUM-RETRACTOR.

Suggestion of DR. T. F. CHUPEIN.

This instrument is designed to hold back the gum, or the rubber-dam, while filling those very troublesome cavities which extend under the gum on the labial surfaces of the anterior teeth.

The Retractor is to be held in the left hand of the operator, or by the assistant, and is so nicely shaped that its hold on the tooth-neck is close, to exclude moisture, and secure against slipping.

Ebony handles.

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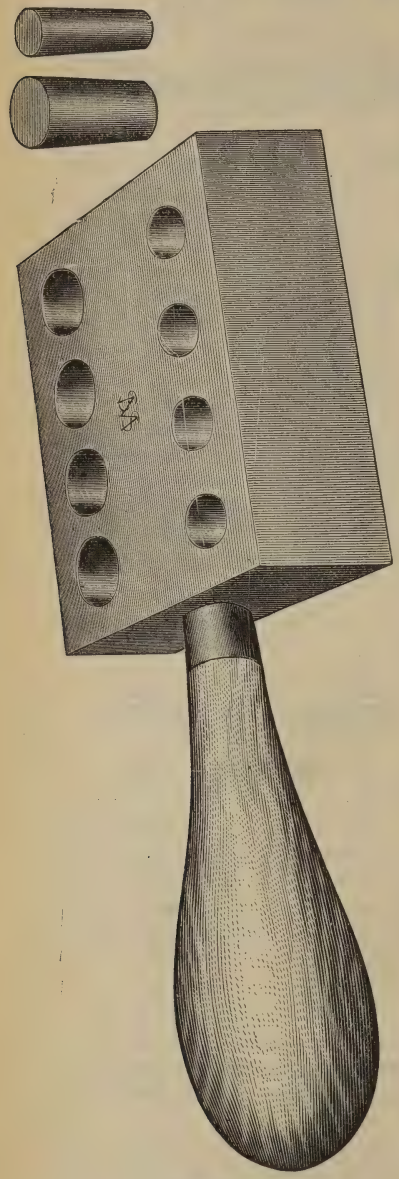
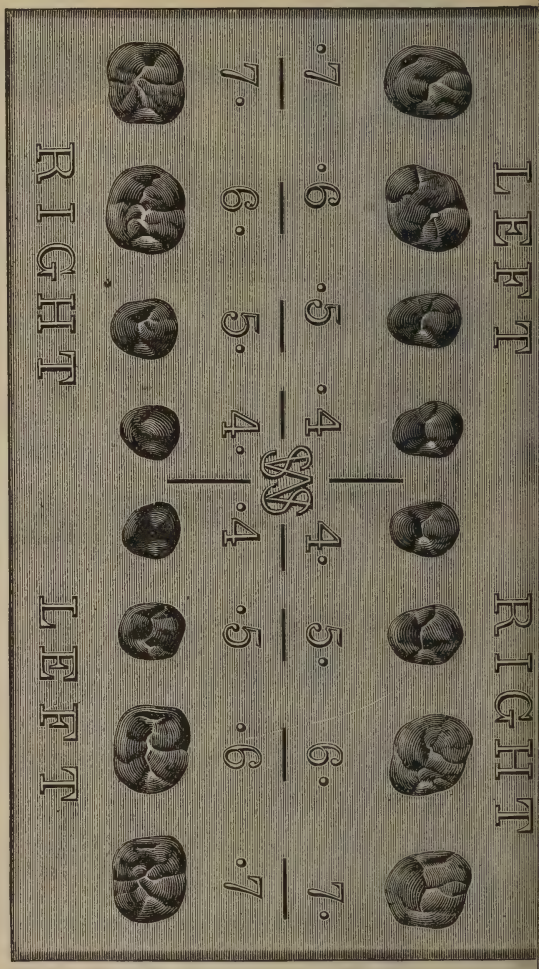


Hub-Mold.



Die-Plate.

These inventions were described in the DENTAL COSMOS for August, 1887, pages 482 to 485.

The Die-Plate is made of a special hard alloy and the Hub-Mold of cast-iron.

PRICES.

Die-Plate,	$5.00
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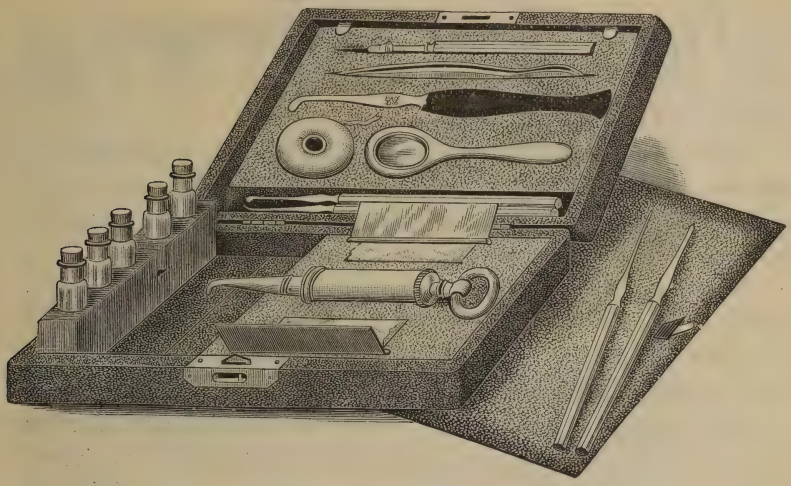
Suggested by Dr. E. C. Moore.



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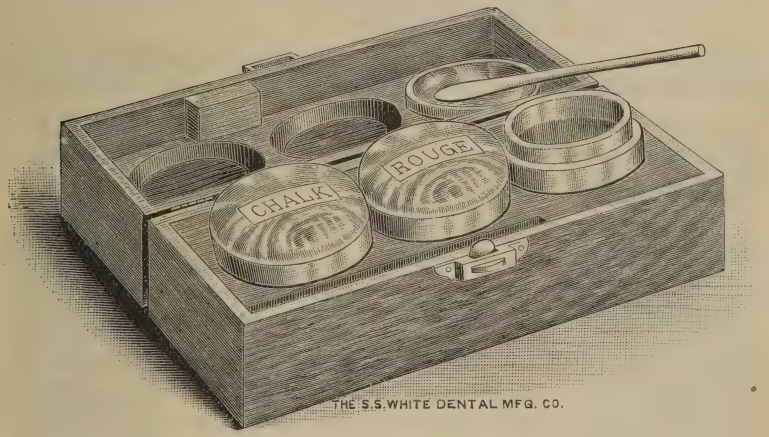

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In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

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Respectfully yours,

I. W. LYON, D.D.S.,

88 MAIDEN LANE, NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

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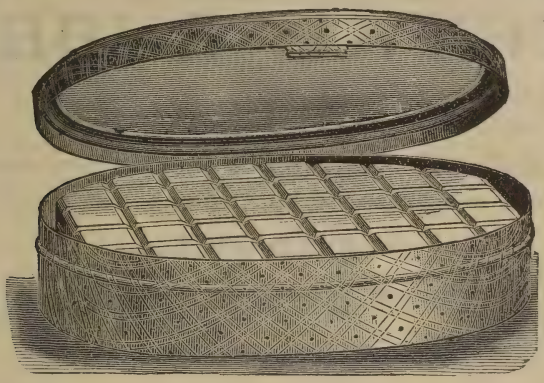

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REDUCED IN SIZE.

This Powder is carefully prepared by an experienced dentist, familiarized by practice with the wants of the teeth. It is absolutely pure and free from acid, grit, or other hurtful substances, and is highly recommended by the most eminent men in the profession. It gives a *delightfully refreshing sensation* in the mouth, strengthening and healing the gums, and imparting a fragrance to the breath which is very agreeable.

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It has the unqualified approbation and endorsement of the profession everywhere, and never fails to give satisfaction.

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It does not spheroid or bulge like many alloys of inferior grade.

If you wish to use one of the nicest working alloys in the market, send for ½ oz., **$1.50**; 1 oz., **$3.00**; or 4 oz. for **$10.00.**

Let the profession give my alloy a fair and impartial trial, and I feel confident I shall receive a liberal amount of patronage. Respectfully,

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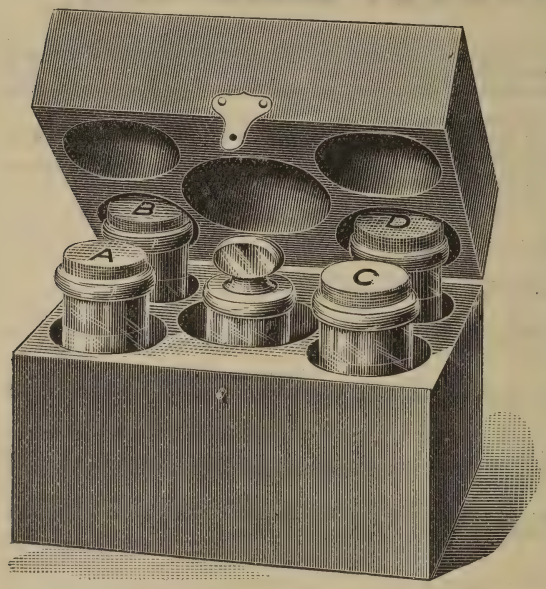

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A, White; B, Brown; C, Yellow; D, Bluish.

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SESSION OF 1887-88

OPENS OCTOBER 5, 1887.

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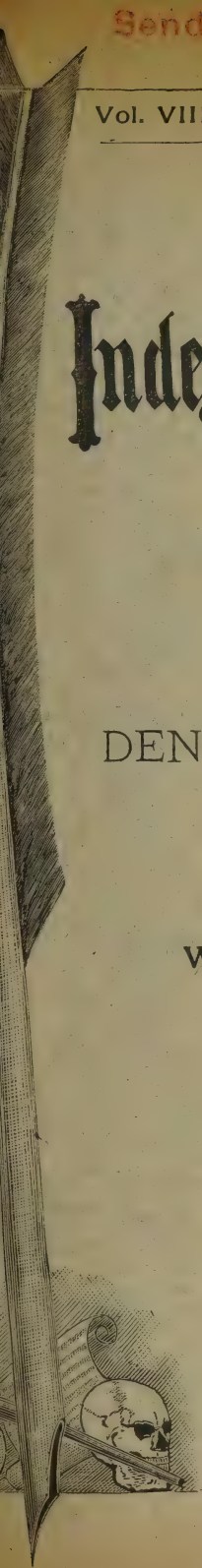

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Table of Contents—November.

ORIGINAL COMMUNICATIONS:

Contributions to the History of Development of the Teeth. Carl Heitzmann and C. F. W. Bodecker..... 565

The Tooth-Pulp in its Relation to Dental Operations. William H. Trueman. 569

General Health as Expressed by the Work of the Kidneys, and its Relation to the Teeth. Chas. Mayr..... 578

REPORTS OF SOCIETY MEETINGS:

American Dental Association 582

Ninth International Medical Congress, Washington, D. C , September, 1887. 588

Southern Dental Association..... 592

Connecticut Valley Dental Society..... 596

Central Dental Association of Northern New Jersey..... 597

New York Odontological Society..... 599

EDITORIAL.

Medical Recognition Again..... 602

Immediate Root-Filling..... 605

An Unusual Opportunity..... 606

Bleaching Teeth..... 608

Bibliographical..... 609

CURRENT NEWS AND OPINION..... 616

Index to Advertisements.

Horsford's Acid Phosphate....Cover Page 2
Charles H. Phillips Chem. Co.. " 2
Dr. G. C. Daboll..... " 2
Underwood Spring Water..... " 3
R. S. Williams..... " 4
Listerine..... Adv. Page 1
Dr. Robert S. Ivy..... " 2
Wanted ..... " 2
A Sensitive Point..... " 2
Drs. Starkey & Palen..... " 2
Seabury & Johnson..... " 3
Claudius Ash & Sons..... " 4 & 5
Codman & Shurtleff's Imp. Inhaler " 6
American Dental Manuf. Co .. " 7
Murdock's Liquid Food Co.... " 8
Edward Rowan & Co..... " 9
C. A. Timme & Co..... " 10 & 11
Hardman's Amalgams..... " 12
Dunn's Medicinal Syringe..... " 12
E. Kearsing..... " 13
Lawrence's Amalgam..... " 13
Wilmington Dental Mf'g Co.... " 14

Gasoline Furnace..... Adv. Page 15
Daly Gold Lining Dental Co.... " 16
Dr. Brown's Univ. Screw Clamp " 17
S. S. White Dental Manuf'g Co. " 18-23
I. W. Lyon..... " 24 & 25
Akron Dental Rubber.. ..... " 26
Parson's Eureka Alloy..... " 27
Florence Mfg. Co..... " 27
J. H. Smith's Cements..... " 28
To Inventors..... " 28
Farwell & Rhines' Gluten Flour " 28
Parke, Davis & Co..... " 29
A. J Nickolds..... " 29
Thos. Dennis' Gold Leaf..... " 30
Ohio College of Dental Surgery " 31
Penn. College of Dental Surgery " 31
Minnesota Hospital College.... " 32
New York College of Dentistry " 33
Philadelphia Dental College.... " 34
Chicago College of Dent. Surg'y " 35
Dental Review..... " 36
The Imperial Alloy..... " 36

The Independent Practitioner—Vol. IX.

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Prospectus.

The Independent Practitioner, from the commencement, has constantly increased in circulation and influence. We propose to make Vol. IX better than any of the previous volumes. For the purpose of bringing it more prominently before dentists, and at the same time to place in their hands one of the most valuable books of reference yet published, The Independent Practitioner has made arrangements with Prof. C. H. Stowell, of Ann Arbor, Mich., which enables it to offer his "Microscopic Structure of a Human Tooth," in connection with subscriptions, at an unprecedentedly low rate This magnificent work, which is published in the form of an atlas containing twelve plates, each twelve by sixteen and one-half inches in size, undoubtedly enables the student and practitioner to get a clearer and more comprehensive idea of the various tissues of the human tooth than can be obtained by any other means. The accompanying text fully explains the illustrations, and gives a concise and clear account of the histological structure of the human tooth. The plates are printed on heavy board, the paper and press-work are like those of some holiday annual, while the cover of the portfolio is in very beautiful imitation of alligator skin. The whole forms a handsome and very appropriate ornament for the office table. Any dentist who desires to obtain a clear and accurate idea of the appearance of the intimate dental tissues, or who desires to impart this information to others, should possess this work.

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VOL. VIII. NOVEMBER, 1887. NO. 11.

NOTE.—No paper published or to be published in another journal will be accepted for this department. All papers must be in the hands of the Editor before the first day of the month preceding that in which they are expected to appear. Extra copies will be furnished to each contributor of an accepted original article, and reprints, in pamphlet form, may be had at the cost of the paper, press-work and binding, if ordered when the manuscript is forwarded. The Editor and Publishers are not responsible for the opinions expressed by contributors. The journal is issued promptly, on the first day of each month.

Original Communications.

CONTRIBUTIONS TO THE HISTORY OF DEVELOPMENT OF THE TEETH.

BY CARL HEITZMANN, M. D., AND C. F. W. BÖDECKER, D. D. S., M. D. S.

CONTINUED FROM PAGE 577.

V. THE DEVELOPMENT OF TEETH IN EMBRYOS AFFECTED WITH RHACHITIS.

Among the numerous embryos, the teeth of which the writers have examined, there were three affected with so-called congenital rhachitis. One of these was a seven-months fœtus, another seven months and a half, while the third was eight months old. Macroscopically the two former did not exhibit any symptoms of rhachitis, and it was only upon microscopical examination of the jaw bones that we were enabled to recognize the morbid process, whose characteristic feature is a new formation of hyaline cartilage in the place of bone tissue. The trabeculæ of the cancellous bone tissue were scantier, and the bone corpuscles within them were much larger than those in normal bone tissue. In many places, however, hyaline cartilage was present instead of bony trabeculæ, and in the

medullary spaces between them. The cartilage corpuscles often were of a brown color, caused either by previous hemorrhage or by a new formation of blood corpuscles and hæmoglobine. The third fœtus, which was eight months old, showed the symptoms of congenital rhachitis in such a degree that all bone tissue throughout the body was lacking, and only in the lower jaw were found a few trabeculæ. This fœtus was delivered by a healthy woman, who during her pregnancy, for a number of months fed dogs, cats and rabbits with soup, meat, bread and vegetables respectively, mixed with lactic acid, for the purpose of artificially producing rhachitis and osteomalacia in these animals. These experiments were made by Carl Heitzmann (see Microscopical Morphology, 1883) and proved to be successful, since dogs and cats, if treated with lactic acid soon after birth, became rhachitic, and if treated with lactic acid for several months in succession, became affected with osteomalacia.

The woman who gave birth to this fœtus was healthy during pregnancy, and remained so after delivery. The fœtus, on the contrary, died shortly after birth, from intra-cranial hemorrhage caused by pressure during labor, on account of the complete absence of cranial bones.

The abnormal occurrences in the teeth of these three rickety embryos were so striking and so numerous that we made an attempt to arrange them under a number of headings, being aware of the fact that different chronic ailments of both mother and fœtus, more especially rhachitis of the fœtus, reflect on the growth of the teeth, and leave marks in the shape of transverse grooves or furrows upon them.

I. Premature eruption of illy developed teeth was found in the lower jaw of a rhachitic fœtus, seven months old (see Fig. 36).

This tooth had reached a stage of development corresponding to about the seventh month of intra-uterine life, but had grown above the level of the gum, and was plainly visible to the naked eye. This specimen helped to settle a mooted question concerning the origin of Nasmyth's membrane, the cuticle of the tooth. The writers observed that the flat epithelial layer covering the summit, and the dentine at the deeper portion of the tooth, is a direct reduplication of the flat epithelial layer of the gum, as mentioned in a former article (see *Dental Cosmos,* 1878 and 1879). The papilla is moderately supplied with blood vessels, and presents a markedly

myxomatous structure, especially at its lower part, which appears lobulated. It is bordered by a structureless layer at its lower portion, which we consider a normal feature, and which is always present previous to the appearance of odontoblasts. The gum is composed of a loose, delicate, fibrous connective tissue. At the right side of the specimen, near the lower portion of the papilla, there appears an isolated layer of myxomatous tissue, which extends below the papilla, bearing the characteristics of the enamel organ. Its outer periphery shows a number of buds or nests, which are the offspring of the external epithelium.

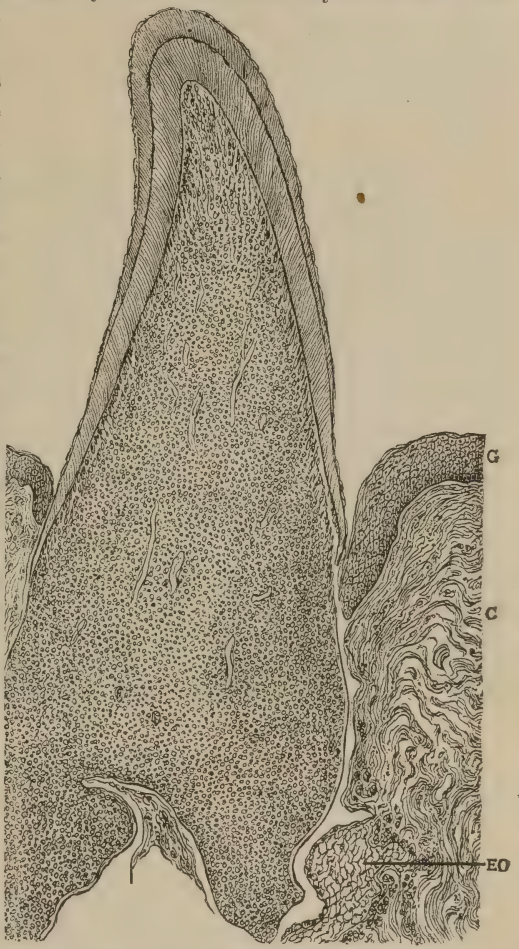

FIG. 36. *Premature eruption of a lower incisor of a rhachitic fœtus, seven months old.*

G. Gum.
C. Fibrous connective tissue.
E. O. Myxomatous enamel organ.
Magnified 50 diam.

II. Double papillæ. In the same fœtus the writers observed two papillæ of lower bicuspids, which at their bases were united into one continuous broad mass, whereas higher up there was seen a cancellous bony structure, separating the papillæ, which proves that they belonged to two separate teeth. The structure of these papillæ was markedly myxomatous, similar in appearance to that of the papillæ of pig's teeth. The enamel

organ appeared to be in full devolopment, being lined by the internal epithelium, which was broken up into medullary tissue, and an external epithelium broken up into epithelial nests. Along the internal epithelium peculiar folds and indentations are visible, which the writers propose to describe later on. No trace of dentine or enamel was visible upon these germs.

Fig. 37. *Dwarfed teeth of a rhachitic fœtus, seven and a half months old.*

A. Blunt foot-shaped papilla, with a constriction. from which the dentine starts.
B. Elongated narrow papilla, from which grows at an acute angle the tooth, again marked by a constricted neck.

Magnified 50 diam.

III. Dwarf teeth. In the rhachitic fœtus which was seven and a half months old, the writers met with minute teeth which were in a stage of development corresponding to the age of the fœtus (See Fig. 37.)

The papillæ are of very irregular shape, being partly blunt, partly elongated, and sharply marked by a constriction at the place corresponding to the neck of the future tooth. Above the neck the papillæ are of the usual lancet or myrtle-leaf shape, exhibiting along their borders either odontoblasts or rows of medullary corpus-

cles, and showing comparatively few blood vessels. The dentine is curved around the constriction in a marked degree, surrounding the neck of the tooth like a cap. Its canaliculi are wide but without pathological features. The enamel is likewise to be considered normal, but the enamel organ is missing in all of these specimens, which indicates that the myxomatous reticulum was exhausted. The external epithelium only shows its presence by small epithelial nests and buds along the already formed enamel.

(TO BE CONTINUED.)

THE TOOTH-PULP IN ITS RELATION TO DENTAL OPERATIONS.

READ BEFORE THE CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY, JUNE 20, 1887.

BY WILLIAM H. TRUEMAN, D. D. S., PHILADELPHIA.

I do not propose at this time to describe minutely the histology or pathology of the tooth-pulp, but rather from a clinical standpoint to consider it as a factor complicating dental operations, rendering them more difficult and painful, and seriously impairing their permanency and usefulness. I propose, while not combating generally accepted methods of practice, to give more prominence to those which an experience of more than a score of years has led me to prefer.

It is questionable if we can safely ignore the presence of a vital pulp in any dental operation; as a rule, however, where the cavity is superficial, or where it does not extend much below the enamel layer, it is seldom that the pulp is at all disturbed, yet there are exceptional cases, notably cavities upon the approximal surfaces of the anterior teeth, and those known as fissure cavities, usually found upon the masticating and buccal surfaces of the posterior teeth—cavities extending into the tooth-substance but a short distance, and which occasionally expose a sensitive tissue that tolerates the presence of the filling but little better than does the dental pulp itself. It has been suggested, and I think correctly, that this abnormally sensitive tissue, owing to some not well understood cause, has not,

during the development of the tooth, been so thoroughly changed in character as has been the normal dentine, and therefore, in a measure, retains its original function. However this may be, clinically we may consider it an extension of the pulp, and in filling such cavities should use the same care and precautions usually deemed necessary in the near approach to or actual exposure of that organ, any other course seriously endangering its well being and vitality. This condition is usually confined to patients comparatively young, and is frequently associated with an organization somewhat below the normal, but is occasionally met with late in life, and in teeth of excellent structure. Many years ago, before the minute structure of the teeth and their mode of development was as well known and appreciated as it is now, Dr. J. D. White, of Philadelphia, referring to this condition, describes it as a sensitive zone extending laterally from the pulp of the anterior teeth, which he proposed to term the "pith" of the tooth. While we may not at this time accept his theory, the precautions in preparing and filling such cavities which he suggested, especially avoidance of pressure and the placing between a metallic filling and the sensitive tissue a non-conductor of heat, are as practical and important now as when he first announced them. When these are neglected, although the pain during or immediately after the operation may not be excessively severe or long continued, a degree of irritation is excited that eventually ends in devitalization of the pulp.

In its final result it thus differs from sensitive dentine; however sensitive the dentine may be, it seldom responds to simple pressure, and seldom indeed does the presence of the filling (except temporarily) prove a source of irritation. It is well, however, in all cases of excessive sensitiveness—a sensitiveness greater than normal, considering the depth and position of the cavity, especially if it seems to be confined to a portion of the cavity only—to suspect this condition and cover the sensitive portion with a cement possessing the property of not readily conducting heat, that can be applied without pressure, and that will become sufficiently rigid to protect the parts beneath when the external portion of the filling is inserted. Gutta-percha is not suitable for this purpose, as it requires pressure in its application, and does not, when so small a bulk as these cases usually permit is used, offer sufficient resistance to the pressure needful to properly insert the remaining portion of the filling. I

prefer to first flood the cavity with creosote, allowing it to remain a few minutes, dry it with bibulous paper, and use a good zinc oxy-chloride cement, mixed rather thin, as a protecting cap. Zinc phosphate, or the non-irritant cements prepared especially for capping exposed pulps, are less liable to cause pain, but I have found the oxy-chloride thus used comparatively painless, and have thought its therapeutic properties a decided advantage. I think it best in all cases where this condition exists, especially if the cavity is in an anterier tooth or the patient has not reached maturity, to avoid undue irritation by using a plastic filling, and keeping it thus filled for several years. A slight irritation seems to stimulate the defective tissue to further development, while but little more than this may prove destructive. This condition, in other than the central and lateral teeth, is comparatively rare. I have noticed of late that articles upon the dental pulp and its treatment have very generally ignored it. This has prompted me to give it more prominence, perhaps, than its clinical importance really demands.

In cases where the cavity approaches the pulp-chamber, the possibility or probability of inserting the filling without exciting serious irritation in the organ it contains has not seemed to me the most important question. That, in most cases, with ordinary care and the use of appliances now in general use, is readily accomplished. The real question has seemed to be this: Can we by so doing secure the best results? I do not question the relative value of a vital and a devitalized tooth. Notwithstanding the greater success now possible in treating devitalized teeth, other things being equal, the greater value of a tooth normal in its relation to the general system over one whose relation is so greatly disturbed as is a tooth from which the dental pulp has been removed, I do not consider a debatable question. This, like many surgical and dental operations, must be a compromise; a balancing of greater and lesser evils; a blending of possibilities and practicabilities; a selecting from numerous desirable and their indissolvable associated undesirable features, those which seem to promise the greater usefulness.

In treating cavities which approach closely the pulp-chamber, we have first to consider the practicability—without unduly encroaching upon the pulp—of removing sufficient of the tooth structure to secure firm retention of the filling and the thorough removal of

all the tooth structure affected or weakened by caries, the presence of which would be likely to favor a recurrence of decay. In crown cavities, cavities upon the buccal surfaces and approximal cavities which do not extend toward the apex of the tooth nearer than the normal gum-line, where they are readily accessible, this is usually effected with ease. Where the cavity is deeply seated, inaccessible, upon the approximal surfaces of bicuspid or molar teeth, or extending toward the apex so far that its cervical margin is formed in cemental tissue, the difficulty is great, and the danger two-fold. We may fail, owing to the extreme sensitiveness of the tissue, to thoroughly remove all the defective tooth-substance at this point, and the inevitable recurring decay will soon render the operation of but little value; or we may, by the thorough removal of the defective tissue, without actual exposure, approach so closely the pulp that within a short time devitalization will occur as a result of the irritation excited. Bearing in mind the peculiar shape of the bicuspid teeth, and as seen in cross-section at or a little nearer the apex than the gum-line, the nearness of the pulp cavity to its outer margin, the difficulty of securing firm margins to the cavity, to so shape it that the filling may be firmly retained and yet kept at a safe distance from the pulp, or to secure these results with sufficient of a non-heat conducting lining, will be seen to be a difficult and uncertain task.

Nor is this all. Should we have, seemingly, accomplished this, knowing so well the extremely delicate organ the cavity so nearly approaches, and how very important it is to avoid any pressure upon the walls of the cavity that would cause them to impinge upon it, or in exercising the care needful to avoid displacing the cap or other non-conducting device, we are very apt not to use sufficient force to press the filling into that close contact with the walls of the cavity absolutely necessary to make a useful and permanent filling. In addition to this, we are compelled to take another risk, namely, the absolute impossibility of determining the exact pathological condition of the pulp. The absence of sensation usually indicates a devitalized pulp, or a pulp so seriously damaged pathologically that we can rarely do wrong to open into and remove the contents of the pulp-chamber. Unfortunately, the presence of sensation does not necessarily imply a vital and normal pulp; neither can we determine by the character of the sensation

the condition the pulp may be in. The best we can do in determining its pathological condition in doubtful cases is a mere guess, the accuracy of which depends upon the ability of the operator to properly interpret the symptoms he observes.

Filling that portion of the cavity near the pulp with a non-conductor of heat, or with a cement which, in addition to protecting the pulp from thermal changes, shall also by its rigidity protect it from pressure during the introduction of the filling, in practice, introduces another serious element of risk. Most of the cements at present available for this purpose, used as they must be, for permanency, depend upon the protection afforded them by the filling. Although the cement properly mixed may prove, when used to form the entire filling, comparatively permanent, when mixed thin, as it must be, to serve as a lining in the cases we are considering, it is far less dense and resistant to destructive agents, especially so if they gain access to it as a result of a defect in the filling, or from recurrence of decay. The invariable result in such cases is, that as soon as from any cause it is exposed, it ceases to serve a useful purpose, and that portion of the cavity protected by it at once becomes the seat of caries under conditions favoring rapid and unobserved progress.

We have, therefore, to consider, in treating these cases, which of the two evils we will accept. First, to devitalize at once and insert a filling that we are reasonably sure will prove as permanent and protective as may be expected, considering its position and surroundings; taking the risks inseparably associated with devitalized teeth of possible and repeated attacks of pericemental irritation, that may end in alveolar abscess. (Alveolar abscess, from personal experience, unless greatly aggravated, I do not consider a serious matter. It is a condition much to be deplored, but is much to be preferred to the chronic state of pericemental irritation which often ends when it is established, and when the abscess has formed, in a great majority of cases, it causes the patient but little and unfrequent annoyance.)

Second, if we decide to fill without devitalizing the pulp, the filling may not be retained, owing to an imperfectly shaped cavity; or it may not, from causes previously stated, prove protective. In either case a devitalized pulp is the usual result, not unfrequently associated with pathological conditions that would probably other-

wise have been avoided. Neither of these results may occur, and yet the usefulness of the operation may be seriously compromised by the tooth giving more or less pain when subjected to thermal changes.

I do not wish to be understood as discouraging pulp conservation or as advocating pulp devitalization, but I do unhesitatingly condemn the formulation of rigid rules regarding the treatment of cases which vary so much in their condition and surroundings—cases whose treatment depends so greatly upon the condition, physical and otherwise, of the patient, as do cavities approaching closely this delicate organ. The treatment should be left to the operator's judgment, the value of which depends upon his ability to observe, compare, reflect and record, to trace cause to effect, and to justly balance the good and the bad. The dentist who always does this, or never does that, is one whose failures are numerous; a blind and reasonless adherence to fixed rules prohibits his seeing or properly appreciating errors, and thus renders them far more numerous and disastrous than they otherwise would be; indeed, his school of experience is on vacation twelve months in the year.

In cases of actual exposure, the remarks previously made apply equally well. The question whether it is best to cap or to devitalize depends as much upon the position, extent, and surroundings of the cavity, as upon the condition of the pulp itself. The nearer the cavity of decay approaches the pulp, the more uncertain becomes the pathological condition of that organ. Where actual exposure exists, this naturally gives us the greater concern. How far its normal condition and relations may be disturbed, without impairment beyond recovery of its normal functions, is an open question. Dr. Louis Jack, of Philadelphia, at the last meeting of the Pennsylvania State Dental Society, read a paper bearing upon this question, entitled "Distinctions between the Indications of Hyperæsthesia and those of Disturbances of the Blood Vessels of the Dental Pulp," that well deserves a careful reading. Dr. Jack has so long and so earnestly advocated the conservative treatment of the dental pulp, and is so careful in collating the results of his efforts, that his conclusions, never hastily reached, are valuable. He describes, in his paper, a progressive case of pulp irritation from the near approach of decay, but first explains the peculiar anatomical arrangement of the capillaries of the dental pulp, which tend

to localize inflammatory conditions and prevent their diffusion throughout the organ. He divides the observed symptoms into two sets, indicating two pathological stages, the subjective and the objective. The subjective is purely nervous, and the symptoms of a neuralgic character. During this stage the tooth responds to cold, but not to heat; pain is excited by pressure upon the contents of the cavity, but the tooth itself is not sensitive to touch, and mastication may be performed without discomfort. Conservation of the pulp may be attempted at this stage, with a fair chance of success. In the next stage the symptoms change; the tooth responds to heat, and not to cold; the circulatory system is now involved, the pain is more constant and localized, and is changed in character; the tooth is painful to touch and to pressure. When this last stage is fully developed, any attempt at treatment other than devitalization is hopeless. In a slowly progressive case there is a period when these two stages exist together; at one time the objective may be the more marked, and if, in response to treatment, recovery takes place, these will disappear and the subjective symptoms alone be observed. Just in proportion as the objective predominates, will conservative treatment become increasingly uncertain. I fully agree with these conclusions, and earnestly commend them and the paper in which they are more fully expressed to your careful consideration. I do not remember any previous attempt to isolate the nervous and inflammatory symptoms, or to make use of the marked distinctions between them in diagnosing the condition of the pulp preparatory to deciding whether to conserve or to destroy. With the special treatment of pulp exposure we have nothing to do at this time; I consider the manner of far more importance than the method.

You will have gathered, ere this, from the drift of my remarks, that much as I value a living pulp, I recognize that there are cases where devitalization is necessary, preparatory to the insertion of a reliable preservative filling; that it is necessary in some cases where, could we avoid the mechanical difficulties encountered in securing the filling and satisfy the conditions deemed necessary to arrest decay, the salvation of the pulp would be reasonably assured. There are other cases where, from the condition of the pulp, its devitalization is merely a question of time, and practically the question is narrowed down to this: Shall we apply arsenic and devitalize in a few hours, or shall we attempt to preserve its vitality with the almost

positive assurance that the same result will be reached within two or three years ?

For devitalization, I use arsenious acid ground up with creosote, sufficient glycerine being added to preserve its pasty consistency. A few drops of otto of rose is added to overcome the odor of creosote. This will keep indefinitely, that which I am now using being the remainder of about an ounce prepared, as nearly as I can recollect, six or eight years ago, and it will probably last to as near the next centennial as I may reasonably expect to reach. Morphia I have never appreciated in dental practice, and regard it as a worse than useless ingredient in "nerve paste." The painless devitalization of a dental pulp depends very much upon the avoidance of pressure in making the application. Morphia I consider inert, and as owing to its great difference in specific gravity from arsenic it tends to separate from it, and as it may do this so completely that the portion of nerve paste applied may consist wholly of morphia, I consider it a mischievous addition. I consider it essential to first place the paste upon a minute pellet of cotton, or in special cases, where the application must be made to the point of exposure, it is quite as essential to prick it in with a fine broach. I use as a covering a pellet of cotton, about one-fourth filling the cavity, thoroughly saturated with moderately thick sandarach varnish. This, after the application has been made, can be passed into the cavity gently and without pressure, the excess of varnish sealing it perfectly. If the paste itself is placed in position within the cavity without the minute cotton pellet to protect it, unless it is pricked in, the varnish seems to flow around it and completely protect the pulp from its action. I have used Baldocks' painless nerve paste with certain results as regards its painlessness, but very uncertain as regards its action upon the pulp. It consists of arsenic ground up with a viscid menstruum, and I am inclined to think that the menstruum protects the tissue from the action of the arsenic, much as I have found the varnish to do if the paste is not protected with a pellet of cotton before the varnish is applied. The arsenic and creosote rarely cause more than very temporary discomfort. Wax, gutta-percha, cements, etc., I consider the worst possible covering for nerve applications, and have found nothing equal to sandarach varnish and cotton.

Treatment to reduce the inflammatory condition of a pulp pre-

paratory to a devitalization application, I regard as simply prolonging the patient's agony. The assertion so frequently made, that the inflammatory condition resists the action of the arsenic, my nearly twenty-five years of active practice has fully disproved. I have ever found that the arsenic in these cases acts as painlessly, as promptly, and as effectually as where this condition did not exist. There are cases, but few in number, however, where the application of arsenic gives violent and long continued pain, or where it fails to produce the desired effect. These quite as frequently I have found where no previous inflammatory condition has existed, as where it had. In cases where doubt exists whether a pulp is partially or completely devitalized as the result of encroaching decay of the tooth, or other causes, I see no reason why an application of arsenic should not be made, neither can I see that any harm would result from the application if the pulp were wholly dead. I have seen no injurious results from the careful use of arsenic for pulp devitalization, and can conceive of none so serious as to warrant us in attempting so barbarous an operation as the removal of a living pulp, or one whose sensibility was partially obtunded only. The idea of devitalizing and removing a portion of a pulp, leaving, perhaps, one-third of that portion occupying the pulp canal, expecting that it is vital and will so remain, I regard as "poetry," and about as practical as poetry usually is. It is true that a leg may be amputated and circulation remain perfect in the stump; but that a small portion of the tissue of a tooth-pulp in which the arteries and veins are without the usual fibrous coats shall retain its normal condition and be nourished as when the organ was intact, seems to me too improbable for serious consideration. If devitalization of the tissue be commenced, there is no certainty as to where it will end.

In the matters which I have particularly emphasized, I am aware that, while not standing alone, I differ from many whose views are often quoted or expressed in the dental journals. In some points my ideas differ widely from those usually taught. It is on this account that they are noted. They have been learned from experience, and by experience often confirmed. Many conditions and much detail that would naturally be considered under the title of the paper are omitted, from the thought that we differ but little in our treatment of them, and therefore their reiteration would be tedious and unprofitable.

GENERAL HEALTH AS EXPRESSED BY THE WORK OF THE KIDNEYS, AND ITS RELATION TO THE TEETH.

Read before the Connecticut Valley Dental Society at Montreal, P. Q., July 22d, 1887.

BY PROF. CHAS. MAYR, SPRINGFIELD, MASS.

While connected with the *New England Journal of Dentistry* I had ample opportunity to observe the importance which was attached by all essayists on general dental pathology to the relation between general health and strength of teeth, meaning by the word strength, not only mechanical hardness, but the general power of resistance. As I have said in former essays, the life of the tooth, as the life of the individual, is the resultant, to use a physical term, between the forces within the tooth and the individual, and the forces outside of the tooth and the individual. The many various agents which tend to destroy teeth are similar to the causes which destroy individuals; either excess of the strength of the outer attack or deficiency in the means of defense, and finally what might be called its "kismet." The tooth is influenced by everything going on in the organism to which it belongs, in a degree which we hardly yet realize.

It is now so long since the living structure of the tooth was demonstrated, that I need scarcely tell you not to think a tooth a senseless block of marble. Some of you have read that fine essay of Flammarion, who imagined an astronomer with a very big telescope stationed on one of the stars, so far distant that just now the light of deeds and happenings on our globe thousands of years ago is just reaching him. He sees everything as plainly as if he stood but a mile or two away, because his telescope magnifies quintillions of times. In the same manner we may say that if we could have microscopes, chemical tests and acuteness of perception quintillions of times better than we now have, we would see in every tooth the history of its development through our Simian ancestors, the Marsupials, the Saurians, etc., down, pointed out as closely as if they were written in black and white. It is only the small brain of a small people, with but small thoughts who know all about this world, but the real, actual world of ours is so deep that the greatest

intellect is nothing but a yard stick with which we would sound the depth of oceans. But by industry and intelligence we may add a little to our yard stick every century, and thus gradually sound deeper and deeper. We can as yet only try around the shores, but our chartography will become more complete with added experience and knowledge. Those enquiries which enlarge our conception of the depth and infinity of things cannot help but elevate us, however little of dollars and cents we may see in them at present. Having thus, in a general way, indicated the general line of thought along which I try to work out problems, and from which I derive some satisfaction, I shall try to increase our knowledge of the points of relation existing between teeth and general health.

The food which we take into our bodies is more complex than that which we secrete; sugar, bread, starch, part of the woody fiber, the different kinds of vegetables, disappear without pronounced specific compounds. All kinds of meat and albuminoid food yield but a small number of compounds, and happily in a form which allows the chemist to examine them more carefully than almost any other waste product of man. From time immemorial the excretions of the human system have been considered offensive and vile, but looking at the matter from a purely chemical standpoint, they are much less so than many chemicals we have to deal with. The secretion of the kidneys—urine especially—is a fairly clean solution of a number of distinct chemical compounds. To understand somewhat their composition, I shall review very briefly the chemical compounds that are characteristic and have been discovered in urine.

The average daily excretion of an individual varies from one pint to two quarts and more, but the amount of solid chemical compounds produced in the same time is far more constant, varying from one and one-half to two ounces in the adult human being. As a rule, many physicians have so far forgotten their knowledge of urinary analysis that they can only take what is called the specific gravity, a point of information of but very little value. But in spite of all the different products, I myself found and verified the fact that the total of solids bears a remarkably close relation to specific gravity.

If, for instance, we find urine of a specific gravity of 1020, we will get a very close approximation of the percentage of solids dis-

solved by multiplying the last two figures by 0.23, giving us in this case 4.6 per cent. This rule does not hold good in pathological urine. A specimen of a specific gravity of 1040, for instance, ought to give, according to this rule, 9.2 per cent. solids, while it was found to contain only 8.4 per cent., being a diabetic urine. Another case of specific gravity 1006 ought to have contained 1.38 per cent. solids, while it contained 2.60 per cent, it being a case of Bright's Disease. Of the solid substances occurring most frequently in urine, I will mention only urea, uric acid, creatine, and the mineral salts of the food as having common salt sulphates, phosphates, etc.

Text-book makers say that the normal reaction of urine is acid. I fail to see the truth of this statement. If we test with an imperfect reagent like litmus, perhaps we will have a faint reddening due to carbonic acid, but if we use more reliable tests like carmine, and some other agents, we will find that the reaction is acid only as far as the carbonic acid gas prevails, but decidedly alkaline in regard to solid constituents.

The statement that fresh urine reacts acid is, like many book statements, but partly true. An alkalicity of one-tenth of one per cent. is not rare. Of the chemicals found in urine, the most interesting, and the one to which I shall confine myself, is urea, a substance which was the first organic compound made from entirely inorganic substances outside the body. Urea, pure, tastes like saltpetre. Its composition is $C\,O\,N_2H_4$.

As a rule, urine contains from one to four per cent. of this salt. When urine become putrescent, this compound decomposes into carbonic acid and ammonia. Uric acid is a fine, clear powder, of very odd shapes when viewed with a microscope. Creatinine is derived from the creatine in meat, and seems to be excreted without any other change. As a rule, lime-salts, lactic acid, oxalic acid, etc., are found in urine. The urea excreted is a measure of the person's activity, far more reliable than any other indication. About two hours after some intense activity, a maximum of excretion takes place, which sometimes goes as high as 2900 milligrammes per hour after very heavy work, or at the rate of 64 grammes daily. On the other hand, during the morning hours, the average falls as low as 500 milligrammes, or at the rate of only 12 grammes a day. It is not alone bodily activity which influences this waste, for mental activity has the same effect. I have a series of very interesting

observations which show how the fluctuations compare with the work, and it is astonishing to observe how thought expresses itself in urine.

Between the different chemicals excreted there exists a certain very striking relation, which may be said to be the health relation of the excretions. If we call the quantity of urea excreted 100, that of phosphoric acid will be about 8., of uric acid 5.6, of lime 2.1, and of salt an amount varying from 58 to 63. Any pronounced disturbance of these relative amounts is accompanied by a pronounced disturbance of the general nutrition of the body. A high percentage of urea indicates too much waste work in the body, because it is not only the visible work which appears as urea, but the worrying, restless work by which many otherwise hopelessly lazy people are tormented. A high percentage of uric acid is always accompanied with dyspeptic symptoms.

At the meeting of the American Dental Association in Saratoga a few years ago, some one said that in all cases of pyorrhœa alveolaris which had come under his observation, he had found a uric acid, or gouty diathesis. Perhaps a urinary analysis would have cleared up some points in a case which has come under my own observation. A remarkable absorption of the teeth was observed, and the urine was found to contain large quantities of lactic acid and lactate of lime. In such instances there is very little hope from mere local treatment or from filling the teeth, but a constitutional treatment might rapidly produce a complete change. We all know how constantly extensive caries accompanies diabetes, a disease most readily diagnosed by examination of the urine, and how teeth seem to lose lime-salts during pregnancy. Do these lime-salts go to the fœtus, or are they excreted? An analysis of urine may solve the problem. Is pyorrhœa alveolaris always connected with excess of uric acid?. How does the oxalic acid formation in the system and its excretion affect teeth? These are a few of the questions which will present themselves to the thoughtful practitioner in connection with the subject, and which can only be approached by his coöperation with those able carefully to investigate the matter. The main object in the writing of this paper is to obtain the coöperation of dental practitioners in the obtaining of specimens of urine for analysis, in which there are peculiar constitutional complications accompanying great disturbances of the teeth.

Reports of Society Meetings.

AMERICAN DENTAL ASSOCIATION.

TWENTY-SEVENTH ANNUAL MEETING.

REPORTED FOR THE INDEPENDENT PRACTITIONER.

CONTINUED FROM PAGE 528.

WEDNESDAY MORNING SESSION.

Section IV, "Histology and Microscopy," was called, and the report was presented by the Chairman, Dr. Frank Abbott. The Section had but one paper to present to the Association, which was upon "The Teeth of Rabbits," by the Chairman of the Section, and this was read.

The author spoke of the importance of the study of comparative anatomy, and of the advantage which dentists may derive from an examination of the teeth of all classes of animals. He had chosen the rabbit as a type of the purely vegetable-eating animals.

Owen says of the inferior incisors of the rabbit, that only the anterior or convex side is provided with a thin layer of enamel, while the posterior or concave side is lacking in this tissue. Helgendorf says that the teeth of hares differ from those of all other rodents in having enamel all around them, although thin at the back. Tomes says that a thin external coat of cement is found upon the back of the tooth, but Dr. Abbott would only admit the presence of a thin coating of cement on that portion of the incisors enclosed in the jaw bone. The enamel slightly protrudes at the cutting edge of the incisors, and the dentine produces a sloping surface downward and backward, always completely investing the pulp tissue.

There is a striking difference in the structure of the dentine of the anterior and posterior portions. In the anterior the canaliculi are arranged with great regularity, running obliquely across, either

upward, or downward and outward, becoming horizontal only at the border of the dentine, while that portion posterior to the pulp-canal shows the canaliculi arranged at less acute angles, and is much less regular. The pulp-canal in a rabbit two months old is cone-shaped, whereas in the full grown animal it is much narrower, and runs eccentrically, with a coating of dentine thicker anteriorly than posteriorly.

With high powers of the microscope, the structure of the enamel which covers the anterior convex surface of the dentine becomes plainly visible. It is composed of rods, taking a slightly sigmoid course, upward in the young and downward in the old animal. The dentine shows the canaliculi as containing delicate fibers, bifurcating freely upon approaching the periphery near the enamel. Here a zone exists, characterized by a lack of distinct structure, most of the canaliculi stopping short of this hyaline layer, only a few traversing it and reaching the interstices between the enamel rods.

The pulp tissue of the grown rabbit contains numerous calcareous aggregations, varying in size, and in some instances becoming pulp stones, thus demonstrating the close relationship existing between dentine and bone tissue.

Rabbits have six molars in the upper, and five in the lower jaw. Although separate teeth, they are cemented together into an almost continuous mass by connective bone tissue. Each tooth is constructed in materially the same manner as the incisors, being covered with enamel only upon their anterior surfaces. The first molar is the shortest, and the fifth is the broadest in the series. The teeth are separated by an intervening layer of periosteum, which extends upwards to the level of the grinding surfaces. To call this cementum would be arbitrary, because it does not reach the lateral surfaces of the teeth. The pulp-canals reach different heights in the different molars, sometimes reaching the grinding surfaces of the teeth.

The enamel of the molar teeth is composed of two distinct layers, the inner one being the enamel proper, the outer being its contact with periosteum or bone, and composed of interlacing decussating fibers. There is some doubt whether this outer layer is true enamel, for in pig embryos there is an analogous structure in which this layer is found outside the enamel proper.

DISCUSSION.

Dr. Atkinson—In the teeth of beavers, and other rodents living upon the bark of trees containing tannin, the exterior face may be seen deeply stained. We see the same thing at the cervical borders of teeth where the enamel and cementum end in a kind of hyaline structure. This would seem to indicate a kind of analogy in structure.

Dr. Abbott—Instead of the cement layer being stained, as Dr. Atkinson asserts, Tomes says that the enamel itself is stained through and through in those cases.

Dr. Pierce—We should study the development of human teeth in the light of the examinations of the lower orders. But in this examination we must keep in mind the difference in function. The teeth of rabbits are of "persistent" growth. They have permanent pulps, and their procession is through life. The modification of function gives us a modification of structure. The anterior portions of these teeth, even in the dentine, is more dense than in the posterior portions. The deciduous teeth are almost abortions. In a few months they are thrown off and the permanent ones appear. This is always the case with deciduous teeth growing over persistent pulps.

Adjourned.

WEDNESDAY EVENING SESSION.

A letter of invitation to attend the meeting of the Southern Dental Association at Old Point Comfort was read. It stated that the members of that Society had found it impossible to accept the invitation of the American Dental Association, to meet in joint session in 1887, because of an invitation to meet with the Virginia State Dental Society. It was suggested that a delegation be sent to meet with the Southern Association this year, armed with power to arrange for a joint meeting in 1888.

Section V, "Materia Medica and Therapeutics," was called, and the report was presented by the Chairman of the Section, Dr. A. W. Harlan, who said:

The year just closed has been an active one in therapeutic advance. Progress does not alone mean the multiplication of remedies, but a better knowledge of those which we now have, as well as trials of new ones. The empiric may stumble upon a useful

drug, but the attempt by him to employ it as a specific will certainly fail. We have learned that too prolonged treatment of pulp-canals is as harmful as to treat every day with antiseptics, which may retard the healing of tissues at the end of the root. It has been urged that when teeth are devitalized, immediate filling of the canals is called for; but it may be accepted as rational that when there is pus or serum present, such practice is unwise. In many cases drainage can only be secured by surgical interference. There is a great variety of materials used for filling roots of teeth. Non-coagulators of albumen are demanded in every case for the treatment of the canals previous to filling. A root filling must be non-irritant, easy of introduction, and stable, to fill the necessary requirements.

The author of the paper continued at some length to review the conditions attending the treatment and filling of root-canals, immediate filling in most cases being deprecated.

DISCUSSION.

Dr. Barrett—In the consideration of the treatment and filling of root-canals, the first thing to determine is whether or not they are in a septic state. If they are, until they have been rendered aseptic, have been entirely disinfected and cleaned and all the septic agents have been destroyed, it seems to me exceedingly bad practice to fill them. If a canal be quite aseptic, or if it has never been infected and the tissues of the tooth and its neighborhood are in a healthy condition, I can see no reason why it should not be filled at once. It is this condition which we endeavor to bring about in our treatment, and when it is secured, then is the time for filling.

Dr. Rhein—I desire to antagonize the stand taken in the paper regarding the immediate filling of root-canals. It is but a matter of time when all will adopt this practice. With the improved drills there is no difficulty in reaching the end of a root at the first sitting. The paper says that only the finest drills should be employed, and that the cutting away of any of the inner tissue of the root is bad practice. How can we better secure an aseptic condition than by removing the septic tissue and that part of the structure of the root which is diseased ?

Dr. Ottofy—While I agree with the author of the paper in most of the points raised, yet I must say that I practice immediate root-

filling, but use some care in the selection of cases. In the discussions of the Chicago Odontological Society, I was surprised to learn, from his own statements, that Dr. Harlan was himself practicing immediate root-filling in a large proportion of his cases. I think that I fill three-fourths of the dead teeth that come under my care immediately. I do not practice this in teeth that I cannot thoroughly explore, and hence second and third molars usually require preliminary treatment. All others can be filled immediately. I use bi-chloride of mercury, 1 to 1000, for cleansing the roots and securing an aseptic condition, and then fill with oxy-phosphate of zinc.

Dr. Atkinson—There is not one single point of true therapy made out in the paper to which we have so patiently listened. We should comprehend what has brought about the state of retrograde metamorphosis. If it be occasioned by a coccus, and this be destroyed, that ends the matter. But if it be occasioned by systemic conditions, we must go back to the origin of the disturbance. The essayist asserts that coagulators of albumen are not fit for root treatment. The whole healing process originates in and is brought about by the coagulation of albumen. The introduction of chloride of zinc has changed the whole contents of a canal into a hyaline matter that is the very best of root-fillings. Dr. Harlan recommends the use of the bi-chloride of mercury and condemns chromic acid, and yet the one is but an attenuation of the other. The former, 1 to 1000, is about the same as the latter, 1 to 500, and both are coagulators of albumen.

Dr. Pierce—We do not realize how tolerant nature is of our blunders. For many years carbolic acid was almost our only remedy for root treatment, and I am inclined to think that our success was nearly as great then as now under modern methods. When I can get a root clean, I do not fear to fill it. When exudation ceases, then is the time to introduce the filling. When there is an abscess, I fill as soon as I can get the root clean, and if a fistula presents, I treat that externally.

Dr. Guilford—We have a number of things to deal with in the treatment of root-canals, aside from the pathological changes. There are mechanical obstacles to be overcome, as in opening up so that all the territory can be reached and all the debris removed. Then comes the treatment and filling. The drilling of a root under almost

any circumstances is a dangerous proceeding. How often do we find a straight root, except in a few anterior teeth? There is no necessity for the drilling of roots, or for the assumption of the risk by which this practice is accompanied.

As regards their filling, I believe in being on the safe side. There is usually no haste, and when a nerve-canal is filled I usually expect it to remain there permanently. Hence, I do not fill until I am sure of my ground.

Dr. Watkins—How do you prepare the buccal roots of molars?

Dr. Guilford—I do not prepare them. How would you prepare them with a drill? If they are too minute to admit a delicate broach, they are too delicate to enter at all, and the leaving of them open will result in no harm. If the canal be flat, certainly no drill can open it, for that will make but a round hole.

Dr. McKellops—I am opposed to the practice of drilling roots. I have seen too many valuable teeth ruined by that practice. The most crooked of roots can be filled with liquid gutta-percha, and there is no danger of thrusting it through the foramen, for the instant it reaches the outside tissue the patient will let you know in an emphatic manner. I use gold broaches, and with them can reach the apex in all cases where it is desired. I recently had in my office a lady who had lost two valuable incisors through this drilling, and she paid, in New York, five hundred dollars for this operation, and for their treatment and filling.

Dr. Harlan—There is no difference between Dr. Rhein and myself, except that he is not acquainted with the nomenclature of the subject. It is impossible to drill out the diseased tissue. I said that all roots which have become encysted and whose canals are quite dry—and these will make up quite sixty per cent. of roots treated—may be filled immediately. With reference to the faulty therapy, I will take issue with Dr. Atkinson, but I will not accept his definition of an abscess. He says, by implication, that he fully comprehends the beautiful haven to which he would lead us, but that we less favored mortals are too blind, too weak, too ignorant, to have any conception of it. In the most dogmatic manner he condemns dogmatism in others. Air is the best coagulator in the world, and yet antiseptic air is the best of healers. Subject passed.

(TO BE CONTINUED.)

NINTH INTERNATIONAL MEDICAL CONGRESS, WASHINGTON, D. C., SEPTEMBER, 1887.

SECTION XVIII, DENTAL AND ORAL SURGERY.

REPORTED FOR THE INDEPENDENT PRACTITIONER, BY "MRS. M. W. J."

CONTINUED FROM PAGE 536.

TUESDAY MORNING SESSION.

Secretary Dudley read a translation of the paper of Dr. E. Brasseur, of Paris, France, entitled "The use of Air in Dental Therapeutics."

The paper was an exposition of the value to the dentist of hot air and remedial agents, applied by means of the Thermo-injector.

He said that the sensitiveness of dentine depends on hygrometric conditions. Nerve filaments penetrate the dentine, some points being so sensitive that it is impossible to touch them without causing extreme suffering. These points he terms "true ganglionic centres." The teeth are the guardians of the alimentary canal, and capable of appreciating the nature of substances submitted to them for mastication, distinguishing promptly between gravel, chalk, sugar, acids, fatty matters, etc., being thus perfect organs of feeling, hyperæsthesia being the pathological state. The use of arsenical paste to allay this sensitiveness, he condemns as extremely dangerous. Teeth with scarcely any decay are often found with fistulous abscesses, with no apparent cause for the death of the pulp until the patient explains that the tooth was very painful when cut, and the dentist put in something which cured it, and this "something" we recognize as arsenious paste. Crystals of carbolic acid, used for the same purpose, by imbibition, destroy the living matter of the tooth substance. If, however, carbolic acid is heated in a tube to 42° C., by means of the Thermo-injector, the heated vapor will penetrate the canaliculi and destroy micro-organisms, producing an anæsthetic instead of a caustic action. If the dentine is extremely sensitive, rendering cutting intolerable, a mixture of eugenol 10 gr., muriate of cocaine, 1 gr., veratria, 10 centigrammes, dissolved in alcohol, adding tannin 25 and glycerine 8 grains, will be found very soothing when applied to the tooth with blasts of heated air. In the several stages, where dentine is discolored and partially softened and the pulp nearly exposed, the work of destruction, unless

promptly checked, will continue until the pulp dies and alveolar abscess follows with all its train of complications. To avert this, we use the heated air, exhausting all moisture; apply bi-chloride of mercury 1 to 1000, followed by oil of cloves or eugenol, with blasts of hot air; cover the walls with copal varnish and paraffine, equal parts, drying with hot air, and place in the bottom of the cavity an asbestos wafer soaked in oil of cloves, and fill with oxy-phosphate.

When a pulp is first exposed, either by caries or traumatism, it is but slightly sensitive. As disease progresses it becomes first sensitive to cold only; then to heat and cold both, and in the last stage heat alone is painful. Thus we have the key to the condition of the pulp. The first stage requires most delicate treatment in the endeavor to preserve the delicate pulp. The patient wants immediate relief; if pain continues he shrinks from every touch, and probably demands that the pulp be killed. Every effort should be used to make him understand the value of that which he is anxious to destroy, and the importance of preserving the vitality of the tooth; that a tooth, if dead, is held in place only by the ligaments of the pericemental membrane; it has no force to struggle against subsequent attacks of disease, while nature, abhorring dead matter, will make every effort to get rid of it. Therefore, every endeavor should be used to preserve it alive. If caries has penetrated to the pulp chamber, it must be kept free from moisture and septic agents, certain to follow the presence of saliva in the cavity. Put on the rubber-dam with clamps; dry out with spunk, followed by hot air. Capping the pulp is perfectly feasible, but is a very delicate operation, requiring great dexterity; all compression is fatal. Blasts of heated air drive the pulp back if hernia has occurred through afflux of blood, moisture causing it to swell. Under the influence of hot air we can see it draw back like an earth worm. In many cases a disk of platinum can be placed over the pulp, but this is not always practicable. Rosenthal's pulpine, or oil of cloves and anhydrous oxide of zinc made into a paste of the consistency of cream, may be applied directly, and the cavity filled with oxy-phosphate of zinc, with an amalgam surface.

In the third stage the pulp has reached the point which necessitates devitalization. If gangrene has already occurred, we recognize it promptly by the odor, the root canals being filled with putrescent matter. We know but little of the ferment in dead pulps,

or the microbes of caries. We leave that to the microscopists. With the aid of heated air we avoid interminable dressings, and the complications which may arise. Applying the rubber-dam, dry with absolute alcohol and apply bi-chloride of mercury, or biniodide, which is more powerful. Anæsthetic vapors of chloroform, ether, or sulphide of carbon, under pressure of hot air, are very penetrating, and attract the water which is normally present, a small amount of vapor eliminating a comparatively large quantity of water; these vapors do not tarnish the brilliancy of the enamel, so precious in the front teeth. The use of these vapors, and those of carbolic acid and iodoform, transfer a large number of cases called incurable to the ranks of conservatism, and materially contract the limits of extraction. As long as any putrefactive elements remain, caries will go on and pus-formation continue. One or two drops of carbolie acid in the root canal, followed by soft gutta-percha, will drive all pus in the canal through the apex to the fistulous opening, where bubbles will emerge, showing that it has penetrated. Clearing the root canal and opening the apex with a root trimmer, tannin and iodoform can be placed in the canula of the injector and blown through the apex by compressed hot air, to the walls of the abscess sac. Then placing a wad of felt at the apex, stop with gutta-percha. The cure is complete when the wad is odorless, when the permanent filling may be inserted. In chronic periodontitis, a douche of hot air on the neck of the tooth penetrates to the bottom of the affected part, and affords prompt relief. Hot air gives gutta-percha great plasticity, renders amalgam more plastic, hastens the setting of oxy-phosphate fillings, and is invaluable in drying the surface of gold fillings if accidentally wet by saliva or the breath. Paraffine should be melted, or copal varnish painted on the surface of cement fillings, to prevent disintegration, often enabling teeth which were mere wrecks to do good service.

Correct diagnosis is of the greatest importance, as doubt endangers the life of the pulp; alternate blasts of hot or cold air afford a sure test of the condition of the pulp. The Thermo-injector is invaluable for the introduction of bleaching agents, causing them to penetrate every portion of the discolored dentine; also for the application of remedial vapors in diseases of the antrum and in catarrh.

The hour for adjournment having arrived, the discussion of this paper was postponed.

TUESDAY AFTERNOON SESSION.

The discussion of Dr. Brasseur's paper was opened by a written paper from Dr. C. A. Brackett, of Newport, Rhode Island. He said that, having had the opportunity of studying the paper in the original, he was perhaps better prepared to judge of its merits than those who had listened to a translation of portions of a paper which, as a whole, was too long for the time assigned to it. The prominent idea of the paper was that of lessening sensitiveness of dentine by hot air, in the process of drying eliminating the normally-contained water of the tissues, thus diminishing, however, its capacity for either normal or pathological functions, one which is that of conveying sensation. Moisture can, without injury, be eliminated from the walls of a cavity which does not approach the pulp, or from the dentine of a pulpless tooth, the next step being the introduction of antiseptic agents. The author of the paper recognized the different pathological conditions of the pulp; his views of pulp-capping are not new to us. Hygrometric filling material is not always objectionable; it is sometimes both comfortable and successful, absorbing the slight exudation from the pulp surface. Great credit is due the author for the apparatus invented, though the advantage of blowing in dry medicinal powders over liquids, as conveyed by the syringe, is doubtful. "Dead teeth" are spoken of by the translator where pulpless teeth, with the pericemental connection intact, were intended by the author.

(The paper was illustrated by drawings of the apparatus, so constructed as to utilize heat generated either by gas or petroleum, or by electricity.)

Dr. Truman, of Philadelphia, said that in the use of hot air, as of any other agent, it must be borne in mind that the tooth is not a dead body. The pulp having prolongations through the dentine, heat, if carried past a certain degree, might destroy those delicate ramifications, or convey such irritation to the pulp as to cause its death.

Dr. W. H. Morgan, of Nashville, thought the statements in the paper too broad, and the language not sufficiently exact. He did not see the advantage of first thoroughly drying to desiccation, and then filling with liquid antiseptics, neither did he admit that abso-

lute dryness was essential to the success of a gold filling. Submarine fillings that were put in thirty or forty years ago, before the day of rubber-dam, did good service. He also took exception to the broad ground taken by the author as to the treatment of alveolar abscess. If the cause was removed and putrefaction arrested, nature would, in a large majority of cases, effect a cure without any treatment at our hands.

Dr. Geo. Whitefield, of Evansville, Ind., uses a rapidly revolving, keen bur in the excavation of sensitive dentine. Discolored dentine he bleaches by the liberation of chlorine from common salt by the action of electricity. Brine penetrates the tubuli, and chlorine, being liberated, whitens the dentine very rapidly.

Dr. S. H. Guilford, of Philadelphia, considered the use of hot air a valuable adjunct, and described in detail the construction of an apparatus for the storage of compressed air, and the mode of conveying it by tubes to the side of the chair, where it can be used either hot or cold as desired, the effects of hot air being very satisfactory to both patient and operator, especially in excavating sensitive dentine and in preparing roots for the reception of dowel-teeth.

Dr. A. H. Brockway, of Brooklyn, thought such elaborate apparatus frightfully cumbersome and absolutely needless, the chip syringe and warm air from the alcohol lamp accomplishing the same results. He had abandoned the desiccating system because of danger to the pulp. He now uses for sensitive dentine very sharp burs, kept moist by a stream of tepid water.

(TO BE CONTINUED.)

SOUTHERN DENTAL ASSOCIATION.

NINETEENTH ANNUAL SESSION AT OLD POINT COMFORT, VA., 1887.

REPORTED FOR THE INDEPENDENT PRACTITIONER, BY "MRS. M. W. J."

CONTINUED FROM PAGE 546.

WEDNESDAY AFTERNOON SESSION.

The subject of Operative Dentistry was continued. Dr. Staples, of Sherman, Texas, read a paper, entitled "The Causes of Failures in Fillings." He attributed ninety-five per cent. of failures to lack

of thoroughness in one way or another, beginning with the tutor in selecting the material out of which to make the future dentist. There is often not only "electro-chemical incompatibility between filling material and dentos," but also electro magnetic incompatibility between both the operator and his patient, and the operator and his work. The dentist is born, not made. If he is born a slip-shod man, there will be lack of thoroughness in all that he does. If he is born stingy, there will be lack of thoroughness from not properly cleansing out the cavity, for fear that it will be made too large, with the consequent demand for too much material. He concluded his paper by saying that we want thoroughness at every point; a thorough application of one end of the instrument, and a thorough dentist at the other end of it.

Dr. Parramore, of Hampton, Va., read a paper, entitled "Aseptic Sponge." He said that man was but an aggregation of cells in various stages of development, the white blood-corpuscles building up tissue, which is transformed into bone, muscle, teeth, hair, etc. Under the microscope we see in a single drop of deep sea water myriads of atoms quivering with life, but lacking the proper environment to develop into something higher. Immerse a log of wood or a piece of sponge in the water, and it is at once filled with these atoms, developing into new phases of life in obedience to their new environment. These atoms are prototypes of other bodies, which require similar protection and assistance to reach their highest development. This is illustrated in sponge-grafting, when the surgeon or the dentist steps in to aid nature in the work of repair. In inflammation there is an abnormal flow of blood to the parts and an increased supply of pabulum for repairs in tissue-building; the result depends on the ability of the parts to appropriate the pabulum. A pulp irritated by exposure makes an effort to protect itself; there is an increased flow of blood, with a deposition of lime-salts; we want the formation of secondary dentine—not of pulp-stones. If we place a small piece of aseptic sponge at the point of exposure, corpuscles will fasten themselves upon it, and, cemented with fibrin and nourished with pabulum, an adamantine barrier will be raised, behind which the pulp may rest secure.

Dr. Parramore stated that though his experience in this direction still lacked the final test of time, he felt well satisfied with the result of pulps capped in this manner six months ago, and hoped the

matter would be tested by others. The sponge, after being thoroughly cleansed under microscopic examination, is sterilized in a one to five hundred solution of bi-chloride of mercury at a temperature of from 180° to 200° F. It is then dried without squeezing, and kept as free from contamination as possible. It is applied dry to the exposed pulp, and the cavity filled with oxy-phosphate, everything used in the operation, including the hands, being bathed in the bi-chloride solution. He also suggested the experimental application of a minute portion of aseptic sponge to the apex of root-canals, to induce the formation of bone material at that point.

Dr. Geo. H. Winckler, of Augusta, Ga., read a paper, entitled "Soft Gold Foils," claiming for soft gold the advantages of being worked very rapidly, thus saving the time of the operator and the strength of patients, especially women and children, the avoidance of the rubber-dam, so objectionable to many, its perfect adaptation to the walls of a cavity, protecting them against bruises. He commends soft foil, especially for all simple cavities with walls intact, for cavities under the free margins of the gums, in simple approximal cavities where knuckling is not required, or if to be knuckled, cohesive foil can be used for contouring, welding it into undercuts when the cavity is two-thirds filled with soft gold.

Dr. Winckler uses soft gold in pellets made by folding a square piece upon itself, making a mat which is crumpled and rolled in the fingers into an oblong pellet pointed at one end. He uses smooth instruments, carefully avoiding pushing through the mass, but compressing thoroughly. For crown cavities he uses forceps-pluggers, having a pad under the jaw for one beak and a condensing point on the other, sometimes utilizing the power of the muscles of the jaw by having the patient bite upon a pad of block tin soldered to the beaks of the forceps. While advocating the use of soft foil in the cases named, he combines both soft and cohesive gold in many instances, and has thus the advantages of both.

Dr. W. H. Morgan—Took issue with Dr. Marshall as to the superiority of new amalgams over the old, and with Dr. Staples as to the "born dentist," education making the man. Replying to Dr. Winckler, he said that the fact that the profession had so largely abandoned soft gold was proof that it was not the best.

Dr. McKellops—Replied that it was not dental education that made such men as John Hunter, and the fathers of dentistry.

Dr. Staples—Said that to educate meant to draw out, and education could not draw out of a man what was not in him. To be a good dentist he must be born to the vocation; in other words, he must have certain natural capacities.

Dr. Storey, of Dallas, Texas—Had never seen a tooth filled with soft gold that would not have been better filled with cohesive gold. He had not been successful in capping pulps, but he intended to try Dr. Parramore's plan.

Dr. Beach, of Clarksville, Tenn.—Thought the true middle ground was to acquire the greatest possible skill, not only in the use of both soft foil and cohesive gold, but also of the plastic materials, he who saves the greatest number of teeth being the best practitioner. The man who confines himself to one material deprives himself of many advantages, and loses many teeth that he might otherwise save.

Dr. J. B. Hodgkin, of the Baltimore College, read a paper, entitled "Amalgams." He said that the making and working of amalgams was based on occult, hidden laws of metallurgy, like causes *not* producing like effects in metallurgic combinations, for the behavior of an alloy could not be predicted from a knowledge of its constituents. After citing certain facts, as that two soft metals, as tin and lead, when combined, make an alloy harder than either of its constituents; that tin and copper, both soft, in combination become hard and tough, but not malleable; that tin (one) and copper (two) makes an alloy hard as steel and brittle as glass, while the addition of more copper and a very small proportion of phosphorus, itself soft and wax-like, gives a compound with greater tensile strength than steel; that iridium, which can only be drilled with the diamond or fused with the oxy-hydrogen blow-pipe, by the addition of a little phosphorus melts rapidly, etc., etc., showing that experiment only can solve the intricate problem of alloys, and only the most brilliant imagination follow out the varying molecular arrangements and chemical action of the various combinations of which metallic elements are susceptible. The addition of mercury induces a still more complex crystallization. The spheroidal tendency, creeping or changing shape, shrinkage on the one hand and expansion on the other, of these alloys, have not yet been effectually controlled, while time brings still other changes. The chemical action of these alloys on tooth-substance is still unsettled; those which turn dark

seem to be the best tooth preservers. The chemistry of the nineteenth century is silent as to why this is so, though various theories have been advanced in regard to the action of the sulphides of silver, or of tin, or of both; as to whether the salts of mercury exert some protective power, or merely kill the microbes. Dr. Hodgkin concludes that amalgam in a cavity near the gum, or in contact with enamel, lacks the elements of tooth-saving, and offers a "Norfolk oyster supper" for a case of amalgam fillings in two approximal cavities in molars or bicuspids, five years old, not now leaking, but still preserving the teeth, and the same reward for an amalgam filling against enamel, with the dentine gone, successfully preserving a tooth five years after insertion.

Adjourned.

(TO BE CONTINUED.)

CONNECTICUT VALLEY DENTAL SOCIETY.

SEMI-ANNUAL MEETING, HELD IN MONTREAL, P. Q., JULY 19 TO 21, INCLUSIVE.

REPORTED BY GEO. A. MAXFIELD, D. D. S., SECRETARY.

CONTINUED FROM PAGE 541.

Prof. Chas. Mayr read a paper on "General Health, as shown by the work of the Kidneys in relation to Teeth" (see page 578).

Dr. Fones—It has been stated that blood poisoning often occurs after the system has been overtaxed.

Prof. Mayr—Blood poisoning may occur without a previous overtaxed system. Excretions of lime-salts occur as soon as exertion commences. Urea is produced by regular work, but far more by worry. There is some doubt as to the source of uric acid. Muscular labor produces urea, yet the creatine in muscle does not seem to be changed. I do not doubt that we have produced, besides urea, something that has not been isolated. The best remedy to cleanse the system is to use waters that are known for their purity. Drink copiously of distilled water sufficient to flush the system. Patients frequently come having a foul breath. When

this is not caused by the teeth, it is an indication that the system is in a disturbed condition. It shows that we ought to endeavor to strengthen the system by giving pure water. Blood-purifying remedies are useless ; there is nothing so good as pure water.

Dr. Black—We are continually liable to run to extremes in this matter. Bad breath may be caused by micro-organisms, but I have had patients with foul breath where I would not find micro-organisms. We are not sure that we have rendered the breath sweet when we have made the mouth pure.

Prof. Mills—I have been very much interested in the reading of this paper. This branch of the medical profession is evidently teaching the other branches. In every organ there is a power to do extra work. There is also a relation between all the excretions of the body, and especially between the urine and the fæces, and a person's breath is affected through the mechanical transfer from the alimentary canal. The membranes of the throat and mouth produce certain excretions which contaminate the breath. Then there is a relation between constipation and a relaxed throat. In these cases good results will follow flushing the system with pure water.

Dr. Atkinson—I am profoundly impressed at seeing a dental body listening to foundation principles. Our generalizations must stop until we hear more from the specialist. This is a very important subject, and we should continue investigations in this line.

Subject passed.

CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

Reported for the Independent Practitioner.

A paper by Dr. Wm. H. Trueman, entitled "The Tooth Pulp in its Relation to Dental Operations," was read by Dr. Luckey. (See page 569.)

Dr. R. B. Winder—I would be loth to assent to the proposition which the essayist seems to have stated very earnestly, that the death of a part of the pulp necessarily involves the death of the whole. That is against all physiological research. You might as well claim that the death of the hand would involve the death

of the arm. The pulp, being a delicate tissue, is, under the influence of disease, liable to die, but it does not follow as a matter of necessity that it should do so in every case. I suspect there are gentlemen here present who have in their practice seen instances, particularly in the lower molar teeth, where it has been found necessary to excise the anterior or the posterior root, and the pulp remained alive in the one that was left.

Dr. Atkinson—I am very much in accord with what Prof. Winder has said. I learned that the remnant of a pulp that had been taken out for one-half or three-fourths of its length, in a single root upper tooth, was capable of healing and remaining for twelve or fifteen years in a perfectly healthy condition. That was taught me by experience. I have repeatedly taken portions of well elaborated pus from the cornua of the pulp of lower molars especially, and I have had the pulp heal and remain kindly as long as I kept the history of the case in my mind.

I had a case of a young lady who was preparing for the stage, who came to me suffering with that intense bounding pain which is almost unbearable. There was periostitis as well as pulpitis present. I had to secure a ligature around the neck of the tooth upon which to make traction, to make it possible for her to bear the operation of opening into the pulp chamber with a very fine drill. I drilled directly through the remaining portion of the dentine that was not decayed, so as to expose the pulp, and pus exuded upon the withdrawal of the drill, and subsequently fresh blood flowed out, indicating the limitation of the abscess with the cornua of the pulp. After two or three days' treatment it healed kindly, and I filled with oxy-phosphate of zinc. That was about twelve years since.

That brings up another little matter of experience. When you are using the oxy-chlorides, or the chloride of zinc solution pretty strong, you will sometimes get some of it down in the tooth when it has not been properly treated before with an obtunder, and in some of those cases I have found the pulp to have been converted into a chloro-zincate of albumen, as I call it. In extracting some of those teeth afterwards, I found that some of the pulps had been converted into this glass-like appearance, leading me to put a very high estimate upon the presence of the chloride of zinc, which had so completely disinfected the neighborhood that it prevented any subsequent periostitis

NEW YORK ODONTOLOGICAL SOCIETY.

Reported for the Independent Practitioner.

The first meeting of this society for the present season was held at the New York Academy of Medicine, Tuesday evening, Oct. 3d., Dr. J. Morgan Howe occupying the chair.

Dr. W. H. Dwinelle exhibited a plaster model, representing what he termed a "giant mouth," being in fact casts of superior and inferior dental arches from the mouth of his colored servant. The arches were uncommonly large, showing in both thirty-four well-shaped teeth. Dr. Dwinelle also exhibited two plaster casts of a female face, taken respectively before and after regulating had been done for correcting protrusion of the upper teeth. Casts representing the teeth of the same case were also exhibited, the first showing a V-shaped, contracted superior arch, with incisors projecting so far forward as to disfigure or raise the lip. The second cast portrayed the corrected condition, the result of spreading the arch on either side and bringing down the front teeth, making a well-formed mouth and face. The doctor also passed for inspection an incisor tooth, once badly broken, but the contour beautifully restored, in which operation he used crystal gold, and to anchor the filling had inserted within the cavity a gold screw.

Dr. W. Jarvie thought Dr. Dwinelle's restoration could have been better accomplished with a porcelain crown.

Dr. Davenport presented a plaster cast, representing the mouth of a young man who had his molar teeth extracted by a dentist in the country simply because they had "ached." This loss of the molars had caused such a degree of pressure on the front teeth as to chip their cutting edges, and to force them forward. Dr. Davenport had been treating the same case for pyorrhœa alveolaris, which also occurred. He introduced a gold plate, covering the roof of the mouth and held in place by atmospheric pressure and clasps. This plate had wings or flanges to cover the bicuspids and a single remaining molar, thus taking much pressure from the front teeth during the process of mastication. He thought the case might be benefited by a rubber plate covering the same teeth for night wear.

The President announced the subject for consideration: "The Combination of Metals as a Filling Material."

A paper from Dr. S. B. Palmer, of Syracuse, was read by the Secretary.

From careful experiment and trial of combination fillings, Dr. Palmer was able to recommend them highly as tooth-saving agents, and particularly valuable did he consider the combination of tin and gold. He described in detail his method of preparing and manipulating it. He places a sheet of tin foil on a sheet of gold foil, and in cutting through them the shears joins together the edges of both, so that in this way united the strips can easily be rolled into cylinders. He spoke of the great advantage this filling had over amalgam in cases where the edges of the cavity walls were thin and friable, and also in "submarine" operations. But where the tooth-structure is firm and compact, he uses gold alone, considering it in favorable cases the best filling material.

Dr. C. T. Stockwell, of Springfield, Mass., sent a paper, which was also read by the Secretary and listened to by the society with great interest. The doctor considered the value of combination fillings over single metals as very great, especially when considering the saving of tooth-structure. He believes that in many instances the combination fillings are more comfortable to the wearer than fillings of one metal, and are often of greater durability. He has used amalgam and gold together, but tin and gold possess this advantage—they can be inserted at one sitting. In badly broken-down teeth he has used amalgam for partly filling the cavities, and after sufficiently hard, has trimmed and cut away a portion of it, then completed the filling with gold, thus preventing the amalgam from showing wholly or in part.

He considers gold excellent for strong teeth, but prefers the combination filling for weak ones. The latter is also valuable for the prevention of trouble from thermal action. He had used such fillings in a great number of instances where pulps were nearly exposed, with no after-trouble from pulp-irritation and loss of vitality, as was often the case where gold had been used. He believes that such chemical conditions exist, that even should a pulp die under a combination filling, abscess would be prevented. He has no doubt that the two metals form an electric current in which micro-organisms cannot exist, and which thus prevents fermentation. This

electric phenomena will, he believes, prevent the pulp from undergoing decomposition, even should it die. Teeth are greatly improved in density after fillings of the combined metals have remained in them for a length of time.

Dr. Davenport—Has filled proximal cavities by first introducing amalgam, then cutting away the outside surface and filling with gold, but reversing the usual order and working the gold from crown to neck.

Dr. Dwinelle—Remarked that lead fillings had been used in sensitive cavities to produce a sedative action on the dentine or pulp. He thinks that amalgam will often save teeth where gold will not, probably because galvanic action causes oxidation and prevents further decay of the tooth-structure, a process which he had frequently referred to as "becoming fossilized." After amalgam fillings have been removed, the dentine is often found to be quite hard, and that too in cases where the tooth-structure was of poor quality before the amalgam was introduced.

Dr. Clowes—Asked why it was necessary to mix together these fillings. If amalgam is good, why not use it alone ? He could see no reason for being afraid to employ it.

Dr. E. H. Raymond (the Secretary)—Remarked, that when reading the papers under discussion he was struck with the idea that electrical phenomena destroy micro-organisms, and if such is really the case he is decidedly in favor of "giving them more lightning." He spoke of the frequency of using amalgam for repairing cases where gold fillings had broken away, and believed that when carefully done they were quite durable, so much so that some one, in speaking of fillings so repaired, asked: "Did you ever find it necessary to patch the patch?"

Dr. J. F. P. Hodson—Believes that combination fillings are very useful in some cases.

Dr. S. C. G. Watkins, of Montclair, N. J.—Uses gold and amalgam in combination, and had inserted such fillings at one sitting. Amalgam alone he believes to be too rigid in many cases, and failure is found at the cavity margins. Tin is soft, and when carefully inserted keeps the edges of cavities in good condition and preserves the teeth.

A vote of thanks was given to both Dr. Palmer and Dr. Stockwell for their valuable and interesting papers.

Editorial.

MEDICAL RECOGNITION AGAIN.

The *Journal of the American Medical Association,* in its issue for August 6th, took occasion to review an editorial in the August number of this Journal, and in effect to accuse its editor of a lack of comprehension of the following resolution, passed by the A. M. A. at its last meeting in Chicago :

Resolved, That the regular graduates of such dental and oral schools and colleges as require of their students a standard of preliminary or general education and a term of professional study equal to the best class of the medical colleges of this country, and embrace in their curriculum all the fundamental branches of medicine, differing chiefly by substituting practical and clinical instruction in dental and oral medicine and surgery, in place of practical and clinical instruction in general medicine and surgery, be recognized as members of the regular profession of medicine, and eligible to membership in this Association on the same conditions and subject to the same regulations as other members.

This action we commended, and expressed the belief that if it were strictly enforced its influence upon dentistry and our dental schools would be of the greatest benefit. But we quoted from an editorial in the *Journal* the following extract, and expressed the fear that it did not indicate that this standard was to be preserved in good faith in the admission of dentists to the International Congress. We were most heartily in favor of accepting the reputable D. D. S. as a qualification for admission, but we opposed the recognition of Delavan and other like fraudulent diplomas, or the issuing of membership tickets to notorious dental quacks. We desired, too, that when the D. D. S. was recognized, it be accepted for what the Chicago resolution really pronounced it—*a degree in medicine.* The editorial in the *Journal* said :

"In regard to the registration of educated dentists, about which there has been some question, it is sufficient to say that the same rule will be followed as governed at the London Congress of 1881. The establishment of a Section of oral and dental surgery is a full admission that it constitutes a part of the domain of general medicine and surgery, and that all who, by education and proper legal authority, practice in that special department, are 'members of the regular medical profession.' At the London Congress they registered with the common prefix 'Dr.,' as did a large portion of eminent members of the profession in other departments.

"At the Congress at Washington it will be proper for them to register with the title Dr., M. D., D. M. D. or D. D. S., according to the term of the authority conferring upon them the right to practice their profession."

We said that the Chicago action "positively announced that the possession of the diploma of a school which came up to the requirements of the resolution would entitle its holder to admission to the International Medical Congress," and the *Journal* remarks, that as the resolution "not only contained no such positive announcement, but actually makes no allusion, directly or indirectly, to the International Medical Congress, it is difficult to account for such an assertion."

Let us see whether the editor of the *Journal* is dealing ingenuously, or is endeavoring by a forced construction to escape from a disagreeable dilemma. The word "positively" was a misprint for "practically," but as the correction in the proof failed to become incorporated in the text, we will even take the paragraph as it reads.

The rules of admission, as published, prescribed that "The Congress will be composed of members of the regular medical profession." The rule for the London Congress was as follows: "The Congress will be composed of medical men legally qualified to practice in their respective countries." It did not accept or acknowledge as a qualification any degree save that of a regular medical school. There was no modification of this rule, except that in regard to invited gusts. All members of "the regular profession of medicine" were entitled to membership. The resolution of the A. M. A. declared that the regular graduates of such dental and oral schools and colleges as came up to the required standard should "be recognized as members of the regular profession of medicine." If this is not an announcement that "the possession of such a diploma would entitle its holder to admission to the International Medical Congress," then there is no force in language, and if the respected editor of the *Journal* cannot so see it, we submit that he is the one who is decidedly "mixed." Besides, the editorial quoted positively asserts that it would be proper for dentists to register with the title of D. D. S., and there was no possible authority for the declaration except that of the resolution.

Again, we said "we were not certain that the authority of the American Medical Association to establish new degrees in medicine

would be respected by all the world, or that its right to modify the rules of admission to a congress with which that association had really nothing to do would be acknowledged by foreign members, but it at least established a valuable precedent."

Upon this the editor of the *Journal* comments as follows: "If our readers will turn to the number of the *Journal* where the resolution and the action of the Association thereon are recorded, they will seek in vain for the slightest allusion to the establishment of any new degrees in medicine."

And yet the resolution positively declares that the possessors of the degree of Doctor of Dental Surgery, for that or its equivalent is the only degree which "dental and oral schools and colleges" confer, shall be recognized as "members of the regular profession of medicine." Before that action, no degree except that of a medical college admitted to such membership, but now it was announced that another diploma should confer the same privilege, and if this is not establishing a new degree in medicine there is no force in logic or meaning in words. When the editor of the *Journal* declared that "At the Congress in Washington it will be proper for them to register with the title Dr., M. D., D. M. D., or D. D. S.,' in a congress which is to "be composed of members of the regular medical profession" only, and almost in the same breath denies that a new degree in medicine, or of admission to the regular medical profession, has been established, we again wonder who it is that is badly "mixed."

The result of this unauthorized announcement was what we feared. It swelled the numerical strength of that meeting and added something to its funds, but at the expense of the good repute of the Dental Section, for in consequence of it some of the most notorious quacks in dentistry, men without qualification or reputation, possessed only of a bad notoriety, registered as members, thrust themselves into the front ranks on every occasion of display, and only took back seats when force was threatened for their expulsion. We are jealous for the good reputation of the profession to which we belong, and when an attempt is made to swell the ranks of any association or meeting of professional men at the expense of dentistry, by admitting in its name those whom dentists repudiate and whom every reputable practitioner shuns and refuses to acknowledge, we shall take occasion to enter our vigorous protest.

We are as anxious as any one to see dentistry properly acknowledged, and to assist in the preservation of a high standard of qualification, but as dentists we shall not add to our own self-respect, or gain the esteem of others, by allowing the disreputable to be thrust upon us. If the American Medical Association will stick to the terms of the Chicago resolution, and recognize those, and only those, who can comply with its requirements, it will assist us materially; but if all its members place upon that expression the same construction that the *Journal* seems to do, and have as little comprehension of the wants and aspirations of all progressive dentists as the editorial in question evinces, we can only say that the less they meddle with dentistry the better will it be for its reputation.

IMMEDIATE ROOT-FILLING.

In dentistry, as in medicine, the constant tendency is toward the exaggerated employment of a commendable practice or remedy. When microbes were first demonstrated to be the cause of certain zymotic disorders, many physicians, possessed of more enthusiasm than judgment, straightway jumped to the conclusion that the origin of all diseases was now discovered, and antiseptics was the specific for everything, from corns to consumption. "Gaseous enemata" is the latest exploded method, but for a time every tuberculous patient had a tube in his fundament.

In dentistry the latest craze is immediate root-filling. That dentists in the past have medicated too much cannot be successfully disputed, but it seems to us that we are now rushing to the other extreme. That in root-canals, long septic, it is sufficient to introduce a disinfectant, this to be immediately followed by a germicide and that by a permanent root-filling, does not seem to us like a safe practice. The products of infection are frequently infiltrated into the tissues, not only of the tooth itself, but of the territory beyond it, and it takes time for the agents to reach the most distant point. It is impossible in many instances to know when the whole is made entirely aseptic.

Again, there may be constitutional disturbances which demand prolonged treatment, in which the healing process must be begun before it is safe to leave nature to her unaided resources. There are products which must be absorbed or otherwise disposed of. There is a low chronic stage of disease, with but slight recuperative

powers in the system to commence and carry on the repairs demanded. What surgeon dares close up a deep cavity without providing means for drainage, if the wound be reinfected ?

A root cannot be well filled until it is entirely dry, and there is frequently an effusion of mositure, of one character or another, which lasts for some time before it can be entirely checked. There are other reasons which may forbid immediate root-filling, yet we are convinced that it might with profit be practiced much oftener than it now is. But enthusiastic speakers in the heat of debate sometimes make exaggerated statements, forgetting the forbidding circumstances, and urging as without exceptions a rule which is only applicable in a majority of cases, while inexperienced young listeners seize upon the declaration, perhaps but partially comprehended, and run off with the shell upon their backs, like half-hatched chickens, only to meet with disappointment and to curse the day in which they attended a society meeting.

Such a case recently came under our own observation, and was a corollary to the debate upon root-filling at the late meeting of the American Dental Association. We do not think that the dentist who made the mistake in question, and who certainly is excelled in intelligence by very few, will again fill a canal which has long been septic until he is more sure of his ground and has tested the conditions. Nor will he again place implicit confidence in the dogmatic assertion of any man until he has tried the matter for himself. "Prove all things; hold fast to that which is good," is an excellent rule of conduct in every situation.

AN UNUSUAL OPPORTUNITY.

We desire to call attention to the publisher's announcement, which will be found opposite the first page of this number. We believe that this opportunity to obtain a work that involved great labor and expense in its preparation is a rare one. "The Microscopic Structure of a Human Tooth," which is offered as a premium for subscriptions to this Journal, is one of the most beautiful works of the kind that has been issued from any press, in any country. It is in the form of a portfolio, sixteen and one-half by twelve inches, the cover being imitation of alligator's skin. There are twelve plates, drawn in India ink and exquisitely engraved, each covering a full page of the same size as the cover. They represent the dif-

ferent tisues of the tooth in such a manner that the merest tyro cannot fail to comprehend the intimate anatomy of that organ, and each plate has an explanatory text giving a full description.

Plate I shows a molar tooth in perfect contour, exhibiting the morphological character of the tooth.

Plate II is a working diagram of a tooth, locating the various tissues, with reference figures to the explanatory text.

Plate III is a longitudinal section of an incisor tooth, showing the structure of all the tissues.

Plate IV is the same section of an inferior molar tooth.

Plate V is a transverse section of the root of a bicuspid.

Plate VI is the blood-vessels of an injected pulp. It is impossible adequately to describe the beautiful system of arteries, veins and capillaries, so truthfully illustrated in this plate.

Plate VII is a section of a root parallel to the dentinal canaliculi, and showing the lacunæ and the lamellæ of cementum.

Plate VIII shows the living parts of a tooth, commencing with the odontoblasts.

Plate IX represents the odontoblasts, enamel rods, interglobular spaces and lamellated dentine.

Plates X, XI and XII are representations of peculiar forms and conditions of teeth.

C. H. Stowell, M. D., F. R. M. S., professor of Histology and Microscopy in the University of Michigan, formerly editor of *The Microscope,* and the author of a number of works on microscopy and histology, spent a great deal of time in perfecting the drawings for this work, and in preparing the text. It is published at the price of Six Dollars, and it will not be sold singly for less. By securing a large number of copies, the publishers of this Journal are enabled to offer it, in connection with a subscription, for a mere nominal sum. This is done for the purpose of placing the work in the hands of every dentist who desires it, and incidentally to help the subscription list of the Independent Practitioner. Of course every one will be aware of the fact that not only is there no money made upon it, but that some one sustains a pecuniary loss by the liberality of the offer.

If there be a dentist who is not entirely familiar with the various parts of a tooth, who, when he attends dental meetings or reads dental journals and hears or sees referred to the minute histological

structure of the teeth has not a clear idea of what is referred to, he should obtain this portfolio atlas, where he will find the whole delineated. If a dentist desires to refer to these tissues, and wishes to make the whole matter plain to his hearers, he needs these large and beautiful illustrations. We have used it in college lectures, and have found nothing which so graphically illustrated that which we wished to make clear to students.

We have described the work at length, because we wish all to have a clear apprehension of what is offered them. The terms upon which it may be procured are announced in the prospectus of Vol. IX of this Journal.

BLEACHING TEETH.

At times there seems to be exhibited either a lack of comprehension of the principles involved in the bleaching of teeth, or speakers in dental meetings do not express themselves clearly. In the report of the discussions at the International Congress, for instance, some of the speakers refer to chlorine gas as the bleaching agent. There is no power in chlorine to discharge color. The active agent is oxygen. When chlorine is used in the process, water is absolutely essential, and hence the instructions sometimes given to exercise care in keeping the cavity into which the chlorine gas is admitted dry, show an ignorance of the principles involved. Moisture is essential, for the chlorine, having a great affinity for the hydrogen of the water, unites with it and sets free the oxygen, and this is the agent which does the work.

The decomposition of common salt in a cavity, by electrolysis or any other means, sets free the chlorine, which unites with the hydrogen of any water that may be present, and in turn liberates the oxygen, and this unites with the coloring matter, usually some form of carbon, and discharges its color.

When Labarraque's solution (chlorinated soda) is used in connection with alum (sulphate of aluminum and ammonium), the process is essentially the same, chlorine being set free and uniting with the hydrogen of water that may be present, and liberating the oxygen. Chlorine gas is commonly used in bleaching teeth because it is the most easily generated of the agents which will liberate free oxygen.

BIBLIOGRAPHICAL.

THE AMERICAN SYSTEM OF DENTISTRY. In Treatises by various Authors. Edited by WILBUR F. LITCH, M. D., D. D. S. Philadelphia: Lea Brothers & Co. 1887.

This is the most voluminous and pretentious work upon the subject of dentistry that has yet been published in America. It consists of three volumes of more than one thousand pages each, profusely illustrated and beautifully printed. The articles contained cover a wide range of subjects, and the authors were selected as those most competent to write upon the designated themes. In reviewing a work of this magnitude, composed of so many separate papers, it will be impossible, within the limits which this journal affords, to consider each contribution in detail. We must speak of it as a whole.

We think that the title of the work does not definitely express its scope and character. A "system" of dentistry presupposes a regular connection of parts forming an entire whole, which shall give a consistent exposition of all the principles and practice of the science and art of dentistry. Each chapter should be a sequel to its predecessor, and there should be a regular succession of the various themes, all blended into one harmonious whole. The work under notice consists of separate, isolated monographs, written by different authors, without special reference to or knowledge of those to which they were to be joined. As a consequence, there is sometimes a painful lack of harmony in the views expressed, and the theories inculcated are at variance with each other.

The principal fault of the work as a "system," then, is its lack of connection. This defect is inherent to the plan upon which it was projected. When to an author of acknowledged eminence is committed the preparation of an essay upon a designated subject, he must be given entire latitude in the development of his views. The papers cannot be "edited" into harmony with the theories possibly held by others, for each author is responsible for his own teachings. The editor can do little more than collocate the material furnished him. Hence, instead of a congruous procession of themes, each paper is as complete by itself and bears as little relation to the others as do the original articles in a good dental journal. A proper "system" of dentistry will not be produced save by individual effort, or by intimate collaboration of joint authors.

In the work under notice, it often occurs that some of the most important subjects are considered with comparative brevity, while others of less importance to the practicing dentist are continued to interminable lengths. The subject-matter and its import to practitioners seems seldom to have dictated the amount of space which should be devoted to it. As an instance, oral surgery occupies, in two articles by different authors, but eighty pages, while the moulding and carving of porcelain teeth, which is almost peculiar to manufacturers of dental goods, has sixty pages. That important subject, diseases incident to the first dentition, receives twenty-eight pages, while anæsthesia, which properly belongs to the study of general medicine, is spun out to two hundred pages.

The work as a whole, then, is not without defects, As a "system" of dentistry, as a text-book for students, as a work for every-day reference by the practitioner, we cannot think that it will supersede or even take rank with such treatises as Garretson, and Tomes, and Heath, in Surgery; Gorgas, in Therapeutics; Salter, and Wedl, in pathology; Richardson, and Hunter, in Mechanics, or Taft, in Operative Dentistry, although it sometimes contains the results of later investigations.

As a collection of essays and papers upon dental subjects it is unrivaled, and in this light it should be read, and in this view it is well worth the reading. There are single essays which, carefully studied, will repay the purchaser of a volume for the full outlay. They may contain little or nothing that is entirely new, but in the main they are the crystallization of the thoughts and observations of a life-time. Most of the authors have expressed substantially the same ideas at other times and in other places, but here we have the summing up of the whole, a condensation of the most important of the work of the dental journals for the past ten years. While we do not believe that "The American System of Dentistry" is adapted to or will soon take its place as a standard authority or text-book in dental science, it contains matter which should be within the reach of every progressive practitioner, and certainly no dental library will be complete without it.

The publishers are to be complimented upon the clear typography, the neat general appearance, and especially upon the excellence of the illustrations, of which there are nearly *nineteen hundred* in the three very handsome volumes.

DIFFERENTIAL DIAGNOSIS; A Manual of the Comparative Semeiology of the More Important Diseases. By F. DE HAVILAND HALL, M. D., Assistant Physician to the Westminster Hospital, London. Third American edition. Thoroughly revised and greatly enlarged. Edited by Frank Woodbury, M. D. Philadelphia: D. G. Brinton. 1887.

We cannot see how a man engaged in general practice can well do without such a work as this. In the treatment of any pathological condition the first essential is a clear diagnosis. Many diseases bear such a close resemblance to each other, especially in the prodromal stages, that their early symptoms are likely to be confounded. It is only by a careful comparison of conditions and indications that the practitioner is enabled to anticipate complications, or even promptly to meet exigencies as they arise. But it is impossible to carry in the mind, without confusion, all the distinguishing characteristics which designate special diseases, while the life of a patient may depend upon an early and correct diagnosis. Hence the necessity for a reliable hand-book of reference for the comparison of symptoms in allied disorders, and in Hall's "Differential Diagnosis" we have them, frequently arranged in parallel columns. We cannot more forcibly recommend the book than by the presentation of a page from it, comparing the symptoms of Typhoid and Typho-Malarial Fevers:

TYPHOID	TYPHO-MALARIAL
Occurs in all localities, most common in the North.	Only in miasmatic localities, most common in the South.
Invasion gradual and without remittance.	Often begins as simple intermittent or remittent.
Daily exacerbation and remission slight.	Daily exacerbation decidedly marked.
Diarrhœa the rule Tympanites common. Abdominal tenderness considerable; epigastric and hepatic tenderness slight.	Constipation the rule. Tympanites rare. Abdominal tenderness slight; epigastric and hepatic tenderness considerable.
Temperature comparatively low. Delirium low and muttering.	Temperature high, especially at the outset. Delirium active.
Spleen not involved to the same extent.	Tumefaction of spleen very marked.
Sordes on the teeth the rule.	Sordes rare.
Peyer's glands always involved.	Peyer's glands rarely involved.
Rose-colored eruption present.	Eruption generally entirely absent.
Pigment deposits absent.	Pigment deposits in various tissues and organs very common.

A Practical Treatise on the Diseases of the Hair and Scalp. By George Thomas Jackson, M. D. New York: E. B. Treat. 1887. Price, $2.75.

As medical knowledge increases and physicians become more and more familiar with the minute changes in the tissues, consequent upon diseased conditions, the greater becomes the necessity for works like that under notice, exclusively devoted to the consideration of the pathological changes in a single organ or tissue. A proper study of the symptomatology and treatment of all diseases, even of a series of organs, within the limits of a single volume, is impossible. Who would have thought, a few years ago, that a volume of 350 pages could be profitably devoted to a study of diseases of the hair and scalp? Yet if any one still entertains doubt upon the subject, a brief examination of this one will give convincing evidence.

There is scarce a man who is not vitally interested in the subject-matter of this book. Alopecia, or baldness, for instance, is becoming frightfully common, and few laymen can give an intelligent opinion of even one of its causes. Physicians, too, are lamentably ignorant concerning this so common affection, and few are competent to prescribe remedial or prophylactic measures. A careful study of this volume will prove of lasting benefit to every one, whether professional or belonging to the laity.

A very complete bibliography of the subject is appended, and this will prove of benefit to any one who desires to make a study of the literature of the subject.

Insanity. Its Classification, Diagnosis and Treatment. A Manual for Students and Practitioners of Medicine. By E. C. Spitzka, M. D. New York: E. B. Treat, 1887. Price, $2.75.

Like the book noticed above, from the same press, this is one of the volumes of a series called "Medical Classics," being hand-books upon definite pathological conditions, each the work of an author eminent in his special field. Dr. Spitzka needs no introduction to the members of the medical profession. During the past five years his name has been as frequently upon the lips of the reading public as that of any alienist or neurologist in this country. His views are well known, and he has, perhaps, contributed as much as any one to popular instruction upon insanity, and to the compre-

hension that it is a symptom of a pathological condition. The poor diseased lunatic is no longer looked upon as one possessed of a devil, or as the victim of his own vices. Instead of chains and scourges, insane asylums now employ remedial and hygienic measures for the relief of the demented.

The work under notice considers insanity according to the usually accepted classification, and describes the symptoms and prescribes the proper treatment. It is illustrated with cuts of diseased conditions of brains, and is enriched with the personal experiences of the author, which have been extensive and varied. There are directions for the examination of the insane, and for the recognition of simulation. Altogether, the book is very complete, and will be indispensable to every neurologist.

LESSONS IN GYNECOLOGY. By WILLIAM GOODELL, A. M., M. D., Professor of Clinical Gynecology in the University of Pennsylvania. Third edition. Revised and greatly enlarged, with one hundred and twelve illustrations. Philadelphia: D. G. Brinton. 1887.

Any book which bears the name of the accomplished Dr. Brinton, whether as author or publisher, is certain to attract the attention of medical men, for there are few who possess such an accurate knowledge of, or such consummate skill in judging, that which will prove both interesting and instructive in literature. This book contains the substance of the clinical and didactic lectures of the author, delivered to the third-year students of the Medical Department of the University of Pennsylvania. The first and second editions were long ago exhausted, and it has for some time been out of print, the author only lately having found time to revise and enlarge it. It does not pretend to be a complete treatise upon all the diseases of women, but takes up the more common gynecological affections and considers them from a clinical standpoint. It is singularly clear and lucid in its pathological descriptions, and the operations and treatment recommended are made so plain that the physician who fails to comprehend must be possessed of singular obtuseness. This distinct intelligibility is one of the principal charms of the work, and makes it invaluable to the young practitioner for study, and to the older one for reference. Too many medical books are written by men who have, perhaps, a sufficiency of knowledge of their subject, but who lack that easy command of

language, that ready facility of expression, that happy faculty of dressing a thought in the appropriate words to clearly and forcibly impress it upon the mind, and to bring into prominence the salient points which are so essential to a well-written book. There are many profound authors whom it is almost impossible to follow through a chapter, because of their lack of perspicuity. Such an objection cannot be urged against the author of "Lessons in Gynecology." The student will peruse it with interest, and will derive more advantage from a chapter of his easily comprehended style than from volumes of the labored paragraphs of authors destitute of literary ability.

MASSAGE. The Principles and Practice of Remedial Treatment by Imparted Motion; Mechanical Processes. By GEO. H. TAYLOR, M. D. New York: John B. Alden, Publisher. 1887.

Manual and mechanical manipulation, or passive exercise and communicated motor energy for the treatment of certain diseased conditions, have, of late years, attracted much attention. This work of 173 pages is devoted to a consideration of the principles underlying intelligent massage, and to the manual and mechanical motions most conducive to the end sought. It is plainly written, and is illustrated with cuts, which make the subjects spoken of clear and intelligible.

THE PHYSICIANS' VISITING LIST FOR 1888.

This is the thirty-seventh year of publication of this best of the visiting lists, by Lindsay & Blakiston, and their successors, P. Blakiston, Son & Co. It contains everything which such a work should contain, and much which will not be found in others of the kind. The volume for this year contains improvements over its predecessors, which were thought in their day to be perfect.

THE DENTAL CHAIR. A Poem of Lights and Shadows. By GEO. H. CHANCE, D. D. S., Portland, Oregon.

Practitioners of dentistry are usually too deeply immersed in the practical and prosy details of every-day work to woo the muses with much success. Dr. Chance, however, mounts Pegasus and indulges in a somewhat sustained flight, during which he takes occasion to express his mind very freely upon certain professional and unprofessional matters, and it would redound to the credit of dentistry were some of his criticisms better heeded.

TRANSACTIONS OF THE TEXAS STATE MEDICAL ASSOCIATION FOR 1887.

It takes a volume of 433 pages to record the doings of this society. In some of the older States a much smaller book contains all that is said and done worth recording. But this was prepared by a medical journalist, and that accounts for its completeness. To Dr. F. E. Daniel, Secretary, and the editor and proprietor of *Daniel's Texas Medical Journal,* is the society indebted for such a complete record.

TRANSACTIONS OF THE ILLINOIS STATE DENTAL SOCIETY FOR 1887.

We know of no State Society which annually presents so much of important matter to the profession as does that of Illinois. The present volume is a worthy continuation of a valuable series.

Report of the Maryland State Board of Health for 1887. The Sanitation of Cities and Towns and the Agricultural Utilization of Excretal Matters.

Intubation of the Larynx. Papers read before the New York Academy of Medicine, at the stated meeting of June 2, 1887. Reprinted from the Medical Record.

The Radical Cure of Retro-displacements of the Uterus and Procidentia, by Alexander's Operation and Median Corporraphy. By J. H. KELLOGG, M. D. Reprinted from the Transactions of the Michigan State Medical Society, 1887.

The Inconsistency of our Code of Dental Ethics. By Dr. C. H. LAND, Detroit, Mich.

Recent Advances in Preventive Medicines. By GEO. H. ROHE, M. D. Reprinted from the Journal of the American Medical Association.

Some Important Points in the Treatment of Deep Urethral Stricture. By F. N. OTIS, M. D. Reprinted from the New York Medical Journal.

Ovarian Tumors and Remarks on Abdominal Surgery. By EDWARD BORCK, A. M., M. D., St. Louis, Mo.

A Review of the Most Important Advances in Surgery, Medicine and Pharmacy in the last forty years. By C. W. MOORE, M. D. Reprinted from the Pacific Record of Medicine and Surgery.

Current News and Opinion.

DENTAL SQUIBBS.

BY "MEANDER." BROOKLYN, N. Y.

"The spirit of the age is essentially practical, and it has little patience with abstract reasoning. We want what can be demonstrated. *Quod erat demonstrandum* is the summing up of all." So says the editor of one of our best dental journals. We sit in silent worship and cry, Amen!

* * *

"*What can be demonstrated*," is the correct text.

Can mortal man "demonstrate" that white is black, and not white at all? Doctor Black says in this Journal, on page 465, Vol. VIII., that "The plastic exudate thrown out in the process of inflammation forms the matrix in which the ameboid cells develop. These cells are always found imbedded within this exudate, and it is"—that is, this exudate—"essential to their"—'their' refers to the ameboid cells—"growth or development into tissue. In the *formation of pus*, this plastic exudate is observed to *liquefy*." Remember this point, "*liquefy!*" "The ameboid cells are found floating in the liquid mass, and are then known as pus corpuscles. Indeed, the cells under these circumstances are no longer capable of development. The matrix in which they are lodged and in which, normally, their development *should* proceed, *has become liquid*, and is *so changed in its chemical qualities that it fails to support them*, and they"—that is, the ameboid cells—*die*.

The italics are the writer's.

The "plastic exudate" is the "matrix." The "plastic exudate" in inflammations *liquefies*, and liquefying causes the death of the ameboid cells. This is the only conclusion of the doctor's argument, for he says so!

Now, then, on page 466, he says: "And the liquefaction of this exudate, carrying with it the ameboid cells in the form of pus, is also constantly proceeding." "If the former"—that is, the liquefaction of this exudate—"exceeds the latter"—that is, the ameboid cells—"the healing of the wound is being accomplished." Above, he tells us where this exudate becomes liquefied it kills these ameboid cells. Then how on earth can the liquefying of this exudate which *kills* the "ameboid cells that come to the surface, tend to pile up in form of living granulations?"

Can such contra-conditions, the one absolutely opposed to the other, be present at one and the same time, *i. e.*, life and death at the same time? Nay, verily!

Will such teachings as these develop in the earnest student lofty attainments in physiology and histology? Again, nay, verily!

* * *

Would it not be wise, indeed, is it not absolutely necessary for our several college faculties *to know*, beyond peradventure, that their candidates for graduation can perform the most simple operations on the teeth, with hard or soft gold, in such a manner that said operations will remain as placed, for a period

longer than three weeks? Ought not all diplomas to tend to elevate, on a critical analysis, the profession which it represents, rather than to bring discredit, first to the names thereunto attached, and secondly, to the college from which such inefficient persons were professionally born?

* * *

Who is the first man to arise and say that he has seen a tooth having a live nerve in itself, and an abscess on its root, at one and the same time? Some wiseacre, who has seen everything, may say: "Humpty-dumpty, why! I've seen such a condition a half dozen times or more." Well, if he has, we never have but once. But we have a case now on hand, and it has beaten our record so completely that we have taken special delight in running a fine probe up, just within the pulp chamber, and then *very innocently* inquiring, "why! did that hurt you so?" Even drawing, sucking on the tooth hurts it severely, and at the same time we have cut into an abscess on the labial surface and evacuated a large amount of pus. The tooth is not sore, does not ache, though nothing is in the cavity but a pledget of cotton wet in carbolic acid and cloves. If we have said it once, we have said it thousands of times, "A tooth cannot ulcerate if you will keep the nerve alive." We believed it, and believe it now as a whole, but these two seemingly opposing and conflicting conditions are just as we have related them. When will fools die and wonders cease? Microbes and bugs can't help us much here.

* * *

There are many cases where a cavity has decayed so low, or high, as to take in a considerable portion of the cervical wall—that is, go below the gum. It is well known that oxy-chloride and oxy-phosphate of zinc will too easily dissolve away at the borders of the cervical wall, and a hole burrow underneath the mass of such fillings, and go post-haste for the nerve. To prevent this, use gutta-percha at cervical border, extending up the edges of the cavity at least one-third the approximate wall. One can make only a light gutta-percha approximate wall, and fill in back and behind this with cements. The gutta-percha won't be affected by those fluids that dissolve out the cements, though not hard enough to wear in the more superior attrition surfaces.

"Meander" should amend his nomenclature, or he, in turn, may become the subject of criticism. He says "nerve" when he means "pulp" and "ulcer" when evidently there was but a simple abscess. His criticisms upon the paper of Dr. Black are rather hypercritical, and outside the meaning intended by the author.

As regards the "ulcer" connected with the live "nerve," is he certain that the disturbance was not connected with the dead pulp of another tooth? We have seen such appearances when careful search found the origin of the abscess some distance away, and having no connection with the tooth-root over which the fistula opened. An abscess may arise from other causes than a dead pulp, but a live and healthy pulp will not be connected therewith.—EDITOR.

DINNER TO PROF. BUSCH.

A reception and dinner, complimentary to Prof. Busch, of the University of Berlin, was given by Dr. C. F. W. Bödecker on the evening of Sept. 30th, at the residence of the latter, No. 60 East 58th Street, New York.

The gentlemen present were Drs. W. H. Atkinson, Frank Abbott, C. F. W. Bödecker, Prof. Busch, Drs. W. Carr, W. H. Dwinelle, C. E. Francis, Carl Heitzmann, S. G. Perry, C. A. Timme, and W. J. Younger, of San Francisco.

A most excellent dinner, liberally garnished with a variety of choice "extras," gave assurance to every one who had the good fortune to test its merits that the big-hearted and generous host was fully equal to the task of entertaining his friends, and in a manner not to be surpassed.

Early in the evening a letter was received from the Editor of the INDEPENDENT PRACTITIONER, which read as follows:

"*My Dear Dr. Bödecker:*

"It is with feelings of genuine regret that I find myself unable to do honor to your guest, Prof. Dr. Busch, and to yourself, by my presence on the happy occasion of your dinner; but to show you that I am with you in spirit, if absent in body, I beg to send the following sentiment:

"The Dentists of Germany and America—leaders in theory and in practice. Without the former, the latter is empiricism; without the latter, the former is pedantry. The German-American should unite the two and make the perfect dentist. Very truly yours,

"W. C. BARRETT."

The sentiment was duly honored, and the health of Dr. Barrett was also "treated" by a rising vote of the company.

Words sparkling with wit and freighted with wisdom were freely and fitly spoken. Scientific and medical subjects bearing upon our specialty were discussed in a conversational way, toasts were offered and each sentiment received a suitable response, making the occasion a feast for both mind and body. Even our worthy and nimble-tongued "patriarch," without whose presence such a gathering would be incomplete, outdid himself in generous utterance of rich aphorisms, which were heartily appreciated by his hearers.

After dinner Prof. Busch was escorted by his friends to the steamship Elbe, (lying at a Hoboken pier), where he was met by a delegation of German students from the New York College of Dentistry, who had assembled to pay their respects to the distinguished visitor, to wish him a safe and pleasant voyage, and to bid him a kindly farewell.

The steamer left for Bremen on the following morning at 5 o'clock.

Dr. Busch is superintendent of the dental departments of the Universities throughout all Germany.

C. E. F.

On Wednesday, Sept. 28, Messrs. A. Muller, L. Hern, G. Gudeville and A. Bandman entertained Prof. Busch at a dinner at Martinelli's, Fifth Avenue, New York City, in behalf of the German students of the New York College of Dentistry. The entertainment was a very pleasant one to both guest and hosts.

B.

NEW ENGLAND DENTAL SOCIETY.

The twenty-fifth annual meeting of this Society was a success from whatever standpoint it may be viewed. It was held in Boston, Oct. 5th, 6th and 7th, and the members in attendance and the character of the papers, discussions and clinics mark a decided era in the history of this old and influential society.

Papers were read by Drs. Gerry, of Lowell; Chupein, of Philadelphia; Shepard, of Boston; Clowes, of New York; Brackett, of Newport; Beers, of Montreal; and Mills, of New York.

Clinical demonstrations were given by Drs. Parr, of New York; Parmly Brown, of Flushing, N. Y.; Carroll, of Meadville, Penn.; Morey, of New York; Waters, of Boston; Freeman, of Chicago; and Genese, of Baltimore.

The officers elected for the ensuing year were:

President—Dr. A. M. Dudley, Salem, Mass.

First Vice-President—Dr. C. A. Brackett, Newport, R. I.

Second Vice-President—Dr. C. W. Clement, Manchester, N. H.

Secretary—Dr. A. H. Gilson, Boston, Mass.

Assistant Secretary—Dr. W. P. Cooke, Boston, Mass.

Treasurer—Dr. G. A. Gerry, Lowell, Mass.

Librarian—Dr. E. O. Kinsman, Cambridge, Mass.

Executive Committee—Dr. R. R. Andrews, Cambridge, Mass.; Dr. H. A. Baker, Boston, Mass.; Dr. Geo. C. Ainsworth, Boston, Mass.; Dr. W. E. Page, Boston, Mass.; Dr. T. W. Clements, Brookline, Mass.

CONNECTICUT VALLEY DENTAL SOCIETY.

The twenty-fourth annual meeting of this Society will be held at the Hotel Warwick, Springfield, Mass., Thursday and Friday, October 27 and 28, 1887. Papers will be read as follows:

1. Reports from the Ninth International Medical Congress. Dr. L. D. Shepard, Dr. James McManus.
2. The Relation of Medicine to Dentistry. Dr. C. A. Brackett.
3. A Consideration of Methods of Saving Badly Decayed Teeth. Dr. C. T. Stockwell.
4. Retrospect: or Some Reflections based upon the Experience and Observations of Fifty Years of Dental Practice. Dr. F. Searle.
5. Professional Brotherhood. Dr. H. C. Merriam.
6. Teeth with Exposed Pulps. Dr. W. O. Barrett.

All practicing dentists are invited to attend.

GEO. A. MAXFIELD, D. D. S., Secretary.

THE FIRST DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK.

Early in the coming January the above Society proposes to hold its Nineteenth Anniversary. To those who have attended previous meetings, under the auspices of the First District, it is hardly necessary to say that it will, in all probability, be a profitable and pleasant gathering. Every opportunity will be offered those who attend to see and hear dentistry from a scientific stand-point. Notwithstanding the great success of some of the previous meetings, the officers propose, if possible, to eclipse all former efforts. Full information will be given next month.

CORRECTION.

In the report of the International Medical Congress in the October number, page 535, Dr. Younger is said to have recommended the use of *Nitric* acid for necrosed bone. It should read *Lactic* acid.

Among the foreign representatives to the Dental Section of the recent International Medical Congress was Dr. J. E. Grevers, of Amsterdam, Holland, who was accompanied to this country by his amiable and accomplished wife. The doctor visited many places of interest during his stay, and called on a large number of dentists in New York, Boston, Philadelphia, Buffalo, Chicago, and other cities. He greatly enjoyed his sojourn among us, and seemed delighted with the attention shown him by his friends on this side of the Atlantic.

C. E F.

To-day Dr. William Dutch, a popular dentist, was found hanging to the transom of his bedroom door. His suicide was due to financial troubles.

—*San Francisco Special, Oct. 24th.*

Dr. Dutch was one of the early graduates of the New York College of Dentistry. He was for one year President of the American Dental Convention, was an excellent operator, and had a large practice in San Francisco.

We knew it must come! We have it from a reliable source, that "Topeka" Thompson is now struggling with a type writer. He has mastered the "Caps," and is now hard at work on the "Lower Case." We venture the assertion that there will be hallelujahs around the office of the *Western Dental Journal* that will loosen the paper on the walls. Now for Harlan, of *The Review.*

The Editor of this Journal will pay a liberal price in cash for the following numbers of dental journals, or he will exchange other numbers for them :

The Dental Register—Vol. III, Nos. 1, 2, 3. Vol. VI, No. 1.

The American Journal of Dental Science—Third Series—Vol. VII, Nos. 7, 10. Vol. VIII, No. 7.

The many professional friends of Dr. E. D. Downs, of Owego, will learn with great regret that he is now in New York City for the purpose of having his leg amputated at the thigh, for a disease caused by an injury received from the crank of his dental chair.

The clergy and the Jews were the leading men of the medical profession during the tenth and eleventh centuries. From 1131 down to 1161 the Popes took occasion to thunder against practicing ecclesiastics.

A traveling doctor who is holding forth in Indiana, has his bills read : If not hung by a mob, I shall reach this place about———.

Henry V. at Agencourt, with 30,000 men, had one surgeon and fifteen assistants.

A PHARMACEUTICAL SPECIALTY FOR DENTISTS.

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FORMULA.—Listerine is the essential antiseptic constituent of Thyme, Eucalyptus, Baptisia, Gaultheria and Mentha Arvensis, in combination. Each fluid drachm also contains two grains of refined and purified Benzo-boracic Acid.

DOSE.—Internally: One teaspoonful three or more times a day (as indicated), either full strength or diluted with water, or in combination with other drugs. As a local application to ulcers, wounds and abscesses, or as a gargle, mouth-wash, inhalant or injection, it can be used ad libitum, diluted as necessary for varied conditions.

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LISTERINE IS A

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A TABULATED EXHIBIT of the Action of LISTERINE upon inert Laboratory Compounds;

FULL AND EXHAUSTIVE REPORTS and Clinical Observations from all sources, both Medical and Dental, comfirming the utility of LISTERINE as a general Antiseptic for both Internal and External use; and particularly

MICROSCOPIC OBSERVATIONS, showing the comparative value and availability of various Antiseptics in the treatment of Diseases of the Oral Cavity, by W. D. Miller, A. B., Ph. D., D. D. S., Prof. of Operative and Clinical Dentistry, University of Berlin, from whose deductions LISTERINE appears to be the most acceptable prophylactic for the care and preservation of the teeth.

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Dr. M. H. Cryer, 1423 Chestnut St., Phila., and others.

4-7-AN-⅙.

ANOTHER

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"COMPOUND OXYGEN—its Mode of Action and Results," is the title of a new brochure of two hundred pages, published by Drs. Starkey & Palen, which gives to all inquirers full information as to this remarkable curative agent and a record of several hundred surprising cures in a wide range of chronic cases—many of them after being abandoned to die by other physicians. Also "COMPOUND OXYGEN—its Origin and Development," an interesting book of one hundred pages. Both or either will be mailed free to any address on application. Read the brochure!

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OUR DENTAL LINT

Is made with great care, by perfected machinery, of which process WE ARE THE SOLE OWNERS AND OPERATORS IN THIS COUNTRY, and our product is guaranteed to be fluffier and lighter than any other make.

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We would also direct your attention to HYDRONAPHTHOL, the new antiseptic and disinfectant. It is odorless, non-poisonous, non-corrosive and tasteless. Is freely soluble in alcohol, ether, benzol, glycerine and fixed oils; twelve times as efficient as carbolic acid and three times as potent as salicylic acid. It is anæsthetic and soothing in its local effects, hence is especially recommended for treating sensitive dental cavities, abscesses, etc., etc. HYDRONAPHTHOL can be had incorporated in our Absorbent Cotton bandages, Jute, or any desired Surgical Dressing that can be rendered antiseptic.

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We have established an office for the sale of our

MINERAL TEETH

Dental Rubbers, Forceps, Etc.,

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No. 30 East 14th Street,

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And have in stock a full assortment of

FLAT TEETH for Metal Plate, and Crown and Bridge Work.
VULCANITE TEETH.
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Pinless, Dovetail and Open Crown for Vulcanite.

We desire to draw attention to the following: Our Improved Pink, New Pink, Whalebone, Flexible Base, Dark Elastic, Orange, Dark Brown and Improved Black Rubbers.

Phosphate and Rock Cement.
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Our MINERAL TEETH

Possess the following desirable qualities.

1. NATURAL FORMS—

   In great variety and of various sizes and lengths.

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   Ranging from very light to very dark shades, and closely resembling the various colours of the human teeth.

3. TEXTURE—

   Non-porous, so that they can be *ground* and *polished* to suit particular cases, therefore being well adapted for Bridge work.

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   Possessing unusual strength on account of their fine and close texture.

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   Bearing in an extraordinary manner the sudden transitions of temperature, so that they can be *soldered without cracking*. Our representative received corroborative evidence of this fact from many of the most prominent dentists in the United States.

CAUTION—

Some unprincipled dealers in the United States are selling imitations of our pinless teeth as our make. Dentists can easily detect the imitation, from the very rough finish and inferior coloring of these teeth.

Our DENTAL RUBBERS

Are much esteemed for their *purity, strength and solidity.*

Professor Attfield, F. C. S., who has put our Dental Rubbers to severe tests in order to settle the question of such a possibility, thus concludes his exhaustive report upon them: "I am of opinion that the vulcanite teeth-plates made from your Rubbers are practically unaffected by saliva or by any substance which ever gains access to the mouth; and, in short, that the pink and red vulcanite gums and palates are absolutely harmless."

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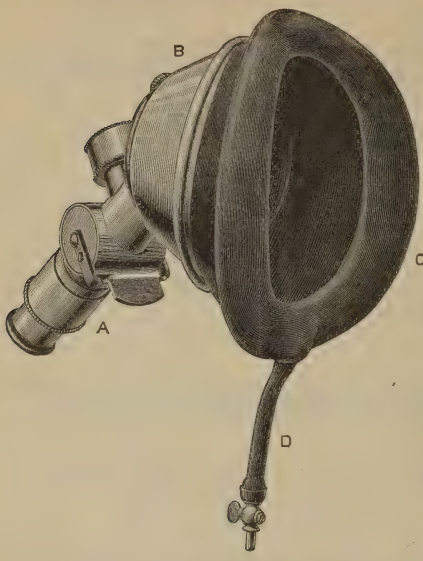

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Price, Complete, . . $12.00.
Parts C and B, . . . 6.00.

In the manufacture and improvement of Inhalers for the Administration of Anæsthetics, we may rightfully claim to have taken the lead, and many competitors have paid us the highest possible compliment, that of imitating our instruments.

Having made these instruments a specialty, our customers may be sure that in every point of stock, workmanship and finish, they will be kept up to the highest standard.

For full description and illustrations of our various styles of Inhalers, see our Catalogue and Special circulars.

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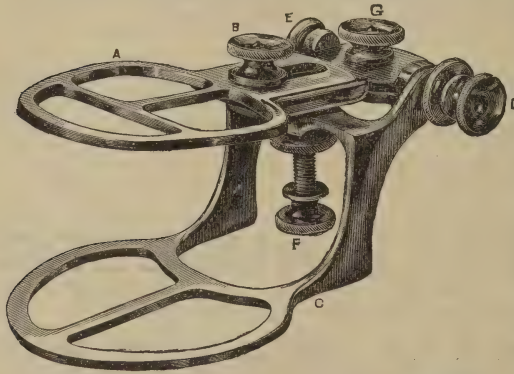
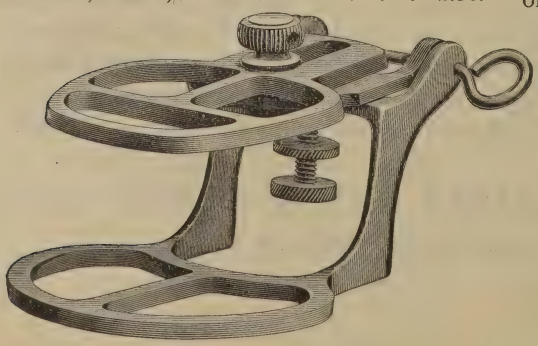


Price, Plain, ... $2.00.
Price, Plated, ... 2.50.

This is the latest, and we believe, all things considered, the best in the market. The upper jaw, *A*, slides backward and forward in grooves, so that by loosening the screw, *B*, this motion can be obtained without danger of lateral displacement. There is a second plate upon which the jaw, *A*, moves laterally, and is controlled by the screw, *G*, so that either of these important motions can be obtained entirely independent of the other. The screw, *F*, which adjusts the space between the jaws, *A* and *C*, is provided with a set-nut, which prevents it from unscrewing. The screws, *D* and *E*, which form the hinge, are cone pointed, and furnished with set-nuts, so that the wear can be taken up, and the movement always kept accurate. On plate *A* there is a series of graduating marks by which the dentist can see just how much change he has made in the articulation.



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This Articulator is strong and well made, and in many respects superior to the cheap ones now sold. It is plated but not polished.

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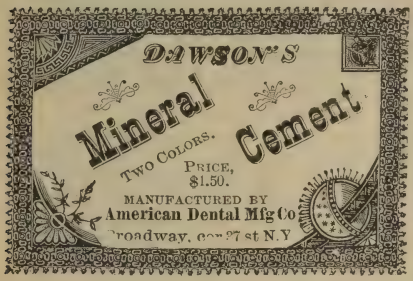

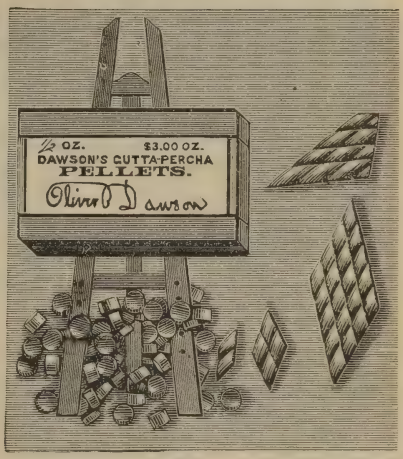

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We are constantly receiving WORDS AND LETTERS OF PRAISE from the Profession, commending the* Superiority *of these Filling Materials.

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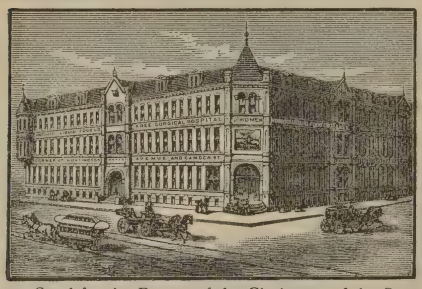
There never was an essay read before any Medical Society on Raw Food Extracts, except on Murdock's Liquid Food, and counterfeit manufacturers of Extracts have published many of our essays to show the value of their counterfeits.

Send for Essay and DISCUSSION before the British Medical Association at Brighton England, 1886, (Essay) by the Vice-President of The American Medical Association and others on the value of Murdock's Liquid Food over all Foods and Extracts known, it being the *only* Raw Condensed Food, free from insoluble matter.

Also essay read before the American Medical Association at Richmond, Virginia, and Washington, D. C.



Its value was recognized by the profession from results obtained in the Free Hospitals that have been established and supported by our Mr. A. L. Murdock during the last four years. They now equal

140 FREE BEDS.

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Our Liquid Food can be retained by the weakest stomach. Four tablespoonfuls daily will make eight per cent. new blood weekly. When used for infants, never change their food, but add five or more drops of Liquid Food at each feeding, and their lost or needed vitality will be restored in less than thirty days.

Send for the Report of the Chairman of the Section of Obstetrics of the American Institute of Homœopathy, read at Saratoga at the annual meeting of 1886.

Circulars were sent by him to all the Physicians in the United States, asking what their experience was with Murdock's Liquid Food in its use for infants under, as well as over, one year old.

Then what results, with all the different Milk preparations, Grain Foods, Peptonoid Foods and Beef Extracts, compared with Murdock's Liquid Food.

The Returns show that it is the Standard Food and Extract, as the percentage of lives restored was the largest when used.

We extract from the report. After calling attention to the fact that one-quarter of the homœopathic profession are accustomed frequently to prescribe this food for children less than a year old, as well as over, he remarks—

"It is singularly adapted to scrofulous, syphilitic, and tubercular constitutions, its life-restoring power manifesting itself in each with a relative clearness and power corresponding to the order of enumeration. For fair-haired children who are inclined to grow fleshy it is more symptomatically recommended, while Duncan's *acid* babies find it particularly useful. Accordingly it is chiefly employed for marasmus and anæmic conditions resulting either from non-assimilation of food or from simple summer complaints. Should a child vomit all milk food and suffer synchronously with diarrhœa or dysentery, the demand for this food is emphatic and unmistakable; also in general irritability of the stomach, particularly if there be sour-smelling diarrhœa, the food passing through undigested. For the prematurely born it stands pre-eminent. For those 'weak and debilitated from any cause, Murdock's Food is probably the best in the world.' Should any indication of cerebral hyperæmia appear, the quantity of food must be diminished; so, too, if after its protracted use, vomiting and diarrhœa ensue, the child has been overfed. *Should the taste or odor of any given bottle chance to be disagreeable, add water until they disappear, and let the purchaser congratulate himself upon getting more nutriment than he paid for.* When given in combination with milk in cases of indigestion, the quantity of milk should be diminished until all curds disappear from the stool, the quantity of Food, of course, being proportionately increased."

The Surgical Staff at Murdock's Free Hospital for Women are in daily attendance, except Saturdays, to examine patients and assign beds. **EVERY BED FREE.**

Our Free Surgical Hospital for Women, located on Huntington avenue, above West Chester park, contains fifty (50) beds, in charge of a staff of five surgeons, members of the Massachusetts Medical Society.

Our Free Surgical Hospital for Women, located on Gainsborough street, corner of Huntington avenue, contains 50 beds, in charge of a staff of five surgeons, members of the Massachusetts Homœopathic Medical Society.

Our Free Home for Homeless Boys contains 40 beds, and is located at 11 to 21 Causeway street. Many of these boys suffer from Scrofula, Eczema, and other skin diseases, which yield quickly by the use of our Liquid Food.

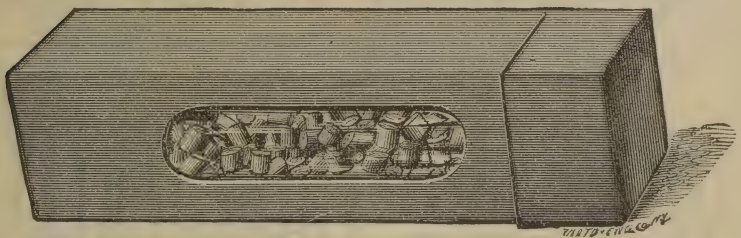
From the fact that no two beeves or sheep are alike is the reason of our different brands being different in flavor. All brands are made by the same formula. The letter represents the day of make, and the figure the tank.

If richer, it is stronger in smell and flavor, and will bear a greater reduction. It cannot be reduced so low but it will be superior to all other preparations in treating chronic cases.

If you cannot obtain Murdock's Liquid Food from your druggist, we deliver, free of express, 12 oz. for $1 00. Any physician that has not used our Liquid Food, we will deliver free to the Boston express 12 oz.

10-6-00-1 **MURDOCK'S LIQUID FOOD CO., BOSTON.**

EXTRA PLIABLE DECIMAL GOLD ROLLS.



(This Engraving represents a Phial of size 1 of the above designated Gold, inclosed in a Box.)

Gold Foil and Gold Rolls, per 1-10 ounce,	$3.00.	Per ounce,	$28.00
Extra Pliable Decimal Gold Rolls, per 1-10 ounce,	3.50.	Per ½ ounce,	17.00
Untrimmed Foil, per 1-5 ounce book,			5.50
Ideal Cement, per package, with Pigments,			1.00
Rowan's Ideal Alloy, No. 1, per 1 oz. $5.00, 2 ozs. $9.00, 4 ozs.			16.00
Rowan's Ideal Alloy, No. 2, per 1 oz. $3.00, 2 ozs. $5.50, 4 ozs.,			10.00
Tin Foil (our make), very tough, per book,			.50

Try some of our "Ideal" Cement Filling and "Ideal" Alloy.

Appended are testimonials for our preparations of Gold from well-known gentlemen:

I have used the Rolled Gold of Edward Rowan & Co., and like it very much. I prefer high numbers—30, 60 and 120—for facility of adaptation to walls of cavities, capacity to bear high annealing and making solid work, I know no superior make.

W. H. ATKINSON,
41 E. 9th Street, N. Y.

October 23, 1882.
271 N. Eutaw Street.

BALTIMORE, Md., June 5th, 1883.

GENTLEMEN—I have used nearly all of the last ounce of your "Extra Cohesive" Decimal Gold Foil No. 4, and it affords me pleasure to inform you that it has *proved* to be a *first-class article* in every respect. It is *cohesive* and *tough* in the *highest degree*, yet possessing *less harshness* than is usually found in cohesive foils. I cheerfully thus refer to it, and so long as you continue to make such foil, I want nothing better. Very respectfully,

JAS. H. HARRIS, M. D., D. D. S.

No. 100 Boylston Street.

BOSTON, MASS., June 30, 1883.

Sirs—I have used your Rolled Gold for several years. When I wish to use *cohesive* gold, I prefer your No. 30 Rolled to any gold with which I am familiar. It is very tough, soft and cohesive. In short, pleasant and easy to work, and makes a compact, even and finished filling. Yours truly,

L. D. SHEPARD,
Late Professor of Operative Dentistry, Harvard University.

S. H. GUILFORD, A.M., D.D.S., (*Professor of Operative and Prosthetic Dentistry, Phila. Dental College*,) has permitted us to state that he uses and recommends our "Gold Rolls."

DR. H. J. MCKELLOPS, of St. Louis, writes us, under date September 16, 1884, "You may use my name in connection with your Gold with pleasure."

H. C. REGISTER, M. D., D. D. S., of Philadelphia, writes us, "You are permitted to use my name in recommending your Gold, as second to none in the world!"

CHAS. L. STEEL, M. D., D. D. S., of Richmond, Va. (*Demonstrator Operative Dentistry, University of Maryland*). DEAR SIRS—Your last ounce of Gold duly received, and, as usual, works superbly. I have used many makes of Cohesive Foil, but for some time past have confined myself to yours exclusively, as I find none other so near perfection.

A. H. FULLER, M. D., D. D. S. (*Professor of Operative Dentistry, Missouri Dental College*). Should you so desire you may state that I have been using your Gold for the past year or more, and find it first-class in every respect. Shall send you an order in a few days for more.

WM. CARR, M. D., 35 West 46th Street, New York, permits us to state that he endorses our Golds. He uses Nos. 3 and 4 soft; No. 60 Rolled; and Gold Rolls.

EDWARD ROWAN & CO.

No. 1048 Third Avenue, S. W. Corner 62d Street, New York.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

REFERENCES FURNISHED ON REQUEST.

C. A. TIMME & CO. Importers of

CASH MUST ACCOMPANY THE ORDER.

COHESIVE, SOFT No

WOLRAB'S PURE CHEMICALLY

GOLD FOIL

C. A. TIMME & CO.

IMPORTERS of DENTISTS SPECIALTIES

SOLE AGENTS FOR THE U. S.

190 HUDSON ST. HOBOKEN N. J.

CUT OF FOIL ENVELOPE

Foil, $4.00 per ⅛ oz., $15.00 per ½ oz., $30.00 per 1 oz.

On orders of two ounces and more at a time a reduction of 50 cents per ounce will be given.

This gold is made in reference to the HERBST method of filling teeth with the engine. It has also proven a very desirable article for the *mallet* and *hand-pressure.*

We claim it to be superior to any other make for its peculiar *softness.* It easily adapts itself to the walls of the cavity, and when properly manipulated it makes a *solid* and *cohesive filling.* If it is to be used cohesively, a slight *warming over* the flame will have the desired result.

Very good reports have been received from prominent practitioners.

Timme's Imported German Phosphate Cement, per box, $1.00.

CUT LABEL FOR CYLINDER BOXES.

CASH MUST ACCOMPANY THIS ORDER.

1/8 oz

CELEBRATED

WOLRAB'S

№ 0 1 2 3 4

GERMAN GOLD.

CHEMICALLY PURE

for the HERBST METHOD

MADE EXPRESSLY of filling TEETH

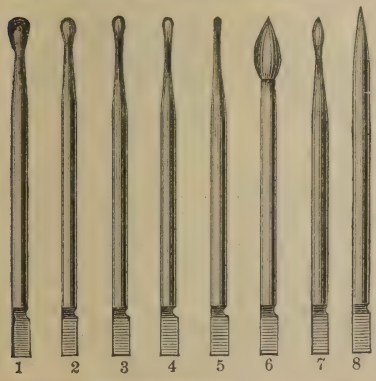
C. A. TIMME & Co. IMPORTERS OF DENTISTS SPECIALTIES

Hudson St. HOBOKEN N.J.

SOLE AGENTS FOR THE U.S.

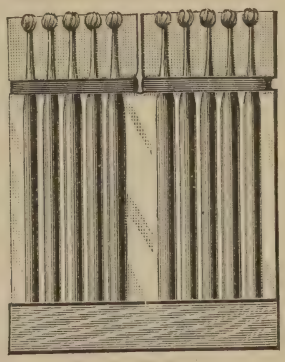
Cylinders, $4.50 per ⅛ oz., $17.00 per ½ oz., $34.00 per 1 oz.

Instruments for the Herbst Method



Made of Agate, per set, - - - $10.00
The same made of Steel, as shown in the cut, per set, - - - - 4.00

Imported Burs, Stone Cut.



Unequaled in temper, arranged on wooden cards, per card of ten, - - - $ 3.00
In boxes of ten cards, - - - 25.00

3-5-AN-2.

HARDMAN'S WHITE ALLOY

Takes the place of gold for filling front, or any teeth.

PRICE, $3.00 PER OZ.

Test for Color—Place a button of Amalgam, that has one surface polished, into a solution of 40 to 60 grs. of sulphuret of Pottassa in 1 oz. of water. Let remain 24 to 48 hours.

Test for Leakage—Fill a small glass test tube with it, just as you would a cavity in a tooth, and drop it into a bottle containing an alcoholic solution of red aniline.

This Alloy Stands These, and Any Other Tests Deemed Requisite to Perfection.

HARDMAN'S SUPERIOR AMALGAM

Surpasses all others for strength and density of texture. Use it for Crown Work, in Molars, &c.

PRICE REDUCED TO $4.00 PER OZ.

Large discounts on both of these in quantities.

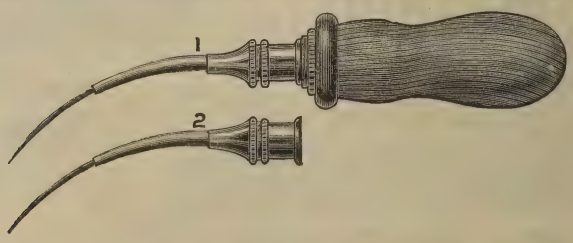
MADE AND FOR SALE BY

J. HARDMAN, MUSCATINE, IOWA.

If your depot does not keep them send to the proprietor for them.

8-4-AN-¼

DUNN'S MEDICINAL SYRINGE.



CUT ACTUAL SIZE.

Easily kept in order—ready and convenient for use.

It can be used with the utmost delicacy in the most sensitive parts.

Its light weight and ease of manipulating insures against the common expense and annoyance of breaking needles.

The mechanism is such as to give it the same force power as the Hypodermic.

Alveolar Abscess can be reached through a long sinus or fistulous track, syringed out, and medicaments injected with certainty and ease.

CHICAGO, Ill., April 7th, 1887.

J. Austin Dunn, D. D. S.:

DEAR SIR—The little Syringe which you left with me admirably meets a long felt want. I consider it the neatest instrument yet given to the profession for injecting remedies in Alveolar Abscess and pus pockets of Pyorrhœa Alveolaris.

Every operator should have several of them to avoid the necessity of using different preparations in the same instruments. Very truly yours, W. W. ALLPORT.

PRICE LIST.

No. 1, Syringe and Steel Needle	**$1.50**
No. 2, Extra Steel Needle, small, (for Pyorrhœa pockets)	**.75**
Or the two Needles and Syringe in one order	**2.00**
No. 1, Syringe with Platina and Gold Needle	**3.00**
No. 2, Extra Needle, small	**2.25**
Or the two Needles and Syringe in one order	**5.00**

The pure Platina Needle is easily bent and soon leaks, and it is thought best to discontinue their manufacture.

PATENT PENDING.

ON RECEIPT OF PRICE A SYRINGE WILL BE SENT BY RETURN MAIL.

J. AUSTIN DUNN, D. D. S.,

70 Dearborn Street, CHICAGO, ILL.

6-7-00-¼.

E. KEARSING'S

COHESIVE AND SOFT

GOLD FOIL,

Used by many of the prominent dentists in this country and abroad.

——ALSO EXTRA FINE——

TIN FOIL AND AMALGAM.

MR. E. KEARSING, *Dear Sir:*—After having used your gold foil for five years, I can say that it gives me better satisfaction than any other that I have used. For restorations and all work where I greatly depend upon cohesive qualities it never fails.

Yours truly, A. H. SCOFIELD, D. D. S.,
113 W. 47th St., New York City.
September 8, 1884.

MR. E. KEARSING:—After using your gold foil about five years with great satisfaction, I feel that I cannot get along without it. It is especially valuable for small cavities, and for fine work in approximal cases. Respectfully, J. N. FARRAR.

MR. E. KEARSING, *Dear Sir:*—After having used your gold, both soft and cohesive, for nearly five years, I find it has given me entire satisfaction in all cases.

Yours truly, J. BOND LITTIG, D. D. S.,
113 W. 47th St., New York City
September 13, 1884.

Dear Sir:—After using your gold foil almost uninterruptedly for the last six years, I have no hesitation in stating that it stands without a rival for performing what are known as contour operations. It answers equally well for small fillings unannealed when properly manipulated. Very truly, H. C. LONGNECKER.
FLUSHING, L. I., Sept. 11, 1884.

E. KEARSING, ESQ., *Dear Sir:*—In reply to your inquiry about my opinion of the merits of your Gold Foil, I can say frankly, after having had over thirty years' acquaintance with it, that it works and wears beautifully. No gold foil ever had a better endorsement than that given your gold foil by the late Dr. Marshall H. Webb, whose elegant operations live to do honor to him and reward you. Your cohesive foil, No. 4, folded into 32 or 48, is daily giving me great satisfaction, being uniformly impacted from beginning to end of the filling with the Electric Plugger. Yours very truly, E. PARMLY BROWN.

101 HOYT STREET,

P. O. Box 182. BROOKLYN, N. Y.

7-4-AN-½

"THE OLD RELIABLE."

LAWRENCE'S

AMALGAM.

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the Trade should be addressed accordingly.

Price, $3.00 per Ounce. For sale at all respectable Dental Depots.

Manufactured only by

AMBROSE LAWRENCE, M. D., 476 Columbus Avenue, Boston, Mass.

10-4-AN ¼

The Wilmington Dental Manufacturing Co.

MANUFACTURERS OF

ARTIFICIAL TEETH,

Nos. 1010 and 1012 KING STREET,

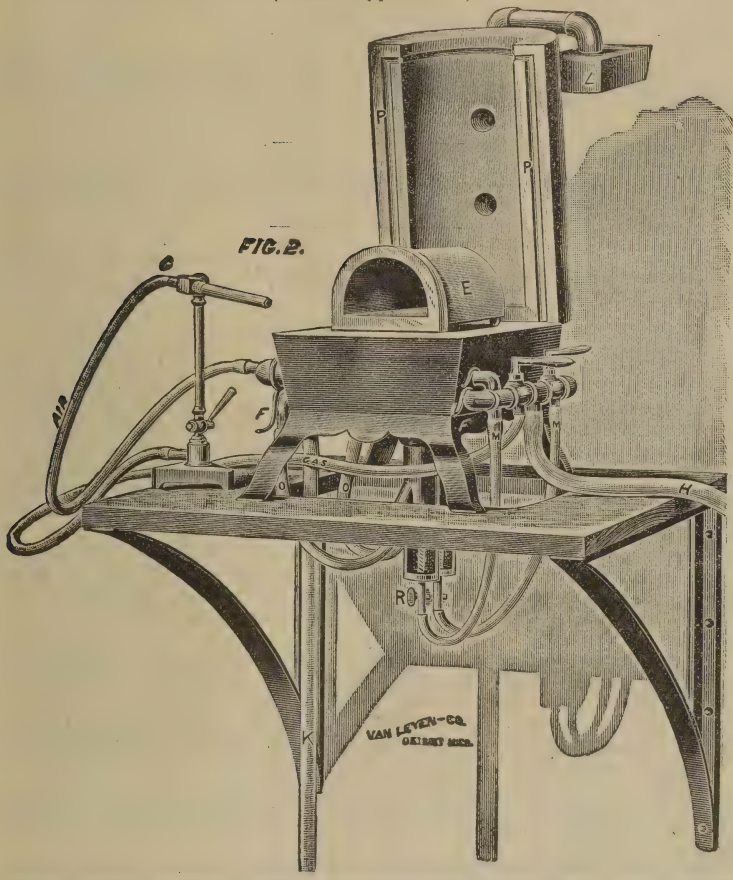
WILMINGTON, DELAWARE.

Having been justly recognized as manufacturing a very SUPERIOR TOOTH at a very moderate PRICE, they now avail themselves of this medium by which they hope to present their merits to the Dental Profession. They have now perfected their designs as to the character of their MODELS, and have fully succeeded in being able to present to the Dentist an opportunity to select a SHADE of enamel which will harmonize and correlate with that of the natural tooth.

☞ *For sale by Dental Dealers everywhere. Send for price list.*

DR. C. H. LAND'S
COMPOUND
GAS OR GASOLINE FURNACE

(Patent Applied for.)



Size No. 1, especially adapted for all kinds of muffle work, crucible work, blow-pipe work, forging and brazing. It is the most complete furnace ever devised for the chemist, assayer, jeweler, dentist and metallurgist. Continuous gum and porcelain can be baked in from 15 to 20 minutes in the most perfect manner and with unerring precision. Send for descriptive circular.

Instructions—In order to enable those who contemplate using gas furnaces and to comprehend their great superiority over coal or coke fires, my laboratory will be open free to all, and with those who desire a special course in continuous gum work, enamel metallic coatings and enamel fillings, favorable arrangements can be made. A visit to my laboratory will be of the utmost value. Here furnaces are operated by both foot and steam power, using either gas or gasoline. Thus practical working can be seen to the best advantage.

Address, C. H. LAND, 264 Woodward Ave., Detroit, Mich.

10-6-AN 1.

DALY'S CHEMICALLY PURE

GOLD LINING

RUBBER SORE MOUTH CURED AND PREVENTED

Each Book Contains 8 Square Inches of Gold Lining.

NEW AND OLD RUBBER PLATES LINED.

This lining presents advantages that no other can. It is formed entirely of chemically pure gold. It is united mechanically with the rubber of the plate without the intervention of any other metal or of rubber or any other cements.

Being so formed and so united there can be no tarnish or chemical change of state from the action of the secretions of the mouth, or from the effects of galvanic action between different metals in contact. Its union with the rubber is so perfect that it cannot be separated from it, and its removal involves the destruction both of the lining and the portion of rubber with which it is in contact.

Every surface of the plate can be lined with it if desired. Old plates, no matter how long worn, can be lined with it, preserving perfectly the fit and articulation. Being formed entirely of pure gold it will not only prevent rubber sore mouth, but will cure that disease, when applied to rubber plates that have produced it.

That rubber sore mouth prevails under rubber plates to an alarming and much greater extent than is generally appreciated, is proven by the testimony, based on actual observation, of such eminent men in our profession as Drs. Taft, Atkinson, Walker, Kulp, Dorrance, Cutler, Allen, Eames, Cushing, Morrison, Judd, Flagg, Younger, Sturgiss, H. A. Smith, Crouse, and others, as well as of members of the medical profession.

This testimony is found on record in the printed proceedings for the last twenty years of such bodies as The American Dental Association, The American Dental Convention, The Southern Dental Association, and many District and State Societies.

The cost of lining plates will be seen to be small by taking the price of a book of it and counting how many plates of different sizes can be covered by eight square inches of lining—the amount contained in each book. Full nstruction with each book.

Price per book, - - - - - - - $3.50.

DALY GOLD LINING DENTAL CO.,

AND ALL DENTAL DEPOTS. **WASHINGTON, D. C.**

10-6-an-1.

COMPOSITION
SILVER STRIPS.

(PATENT APPLIED FOR.)

Invention of Dr. E. Parmly Brown.

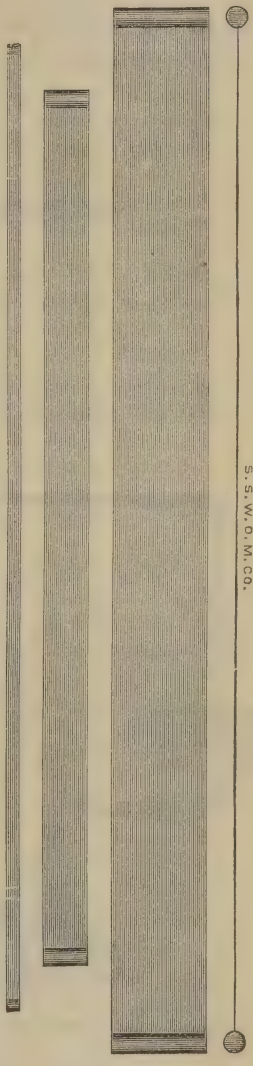
For dentists' use in polishing between the teeth and dressing approximal gold fillings.

To be used with wet pulverized pumice, or other suitable powder.

Can be smoothed out, after being used, by being drawn between the folds of a towel or over the edge of a table.

Put up in packages of one dozen, in a variety of sizes.

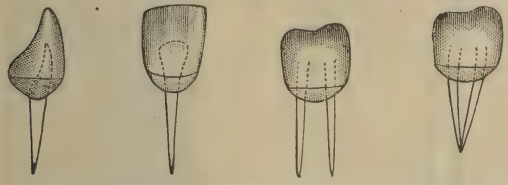
Price, ... per package, 50 cents.



DR. E. PARMLY BROWN'S TOOTH CROWNS.

PATENT APPLIED FOR.

FIG. 1. FIG. 2. FIG. 3. FIG. 4.



These cuts represent position and shape of pins in the tooth.

For full description, see *Dental Cosmos*, September, 1886, pages 583, 588 and 589.

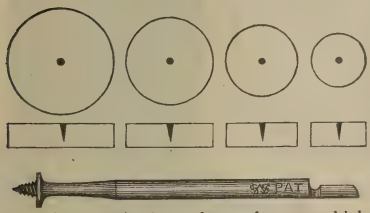
PRICES,

Brown's Tooth Crowns, . . . each 65 cents.

SOLD BY WELCH DENTAL CO.

MOOSE-HIDE POINTS FOR DENTAL ENGINE.

For Carrying Pumice or other Powders to Clean Teeth or Polish Fillings.



Designed and introduced by Dr. E. Parmly Brown, who claims that these Moose-hide Points are more efficient than any other engine polisher heretofore offered to the profession. A moment's use when wet causes them to conform perfectly to the surfaces to which they are applied, when they become like a brush, passing readily between the teeth to the point of close contact. Their extreme toughness gives them a firm hold on the mandrel. They can be used on any screw mandrel, but a medium sized screw and a medium length of mandrel as shown in cut are recommended by Dr. Brown as most satisfactory. A thimbleful of pumice-powder should be mixed with water in a small dish, and into this the Point should be dipped from time to time. A fresh Point should, of course, be used for every case.

Put up in boxes containing thirty Points, assorted sizes.

Price, . . . per box, 50 cents.

No Dental office should be without

DR. BROWN'S UNIVERSAL SCREW CLAMP,

(CLAMP AND KEY, Nickel-Plated, $4.00.)

His *Depressed Dental Rubber Dam* is now being manufactured thin, and of the very best quality of Rubber, put up in boxes of twenty,

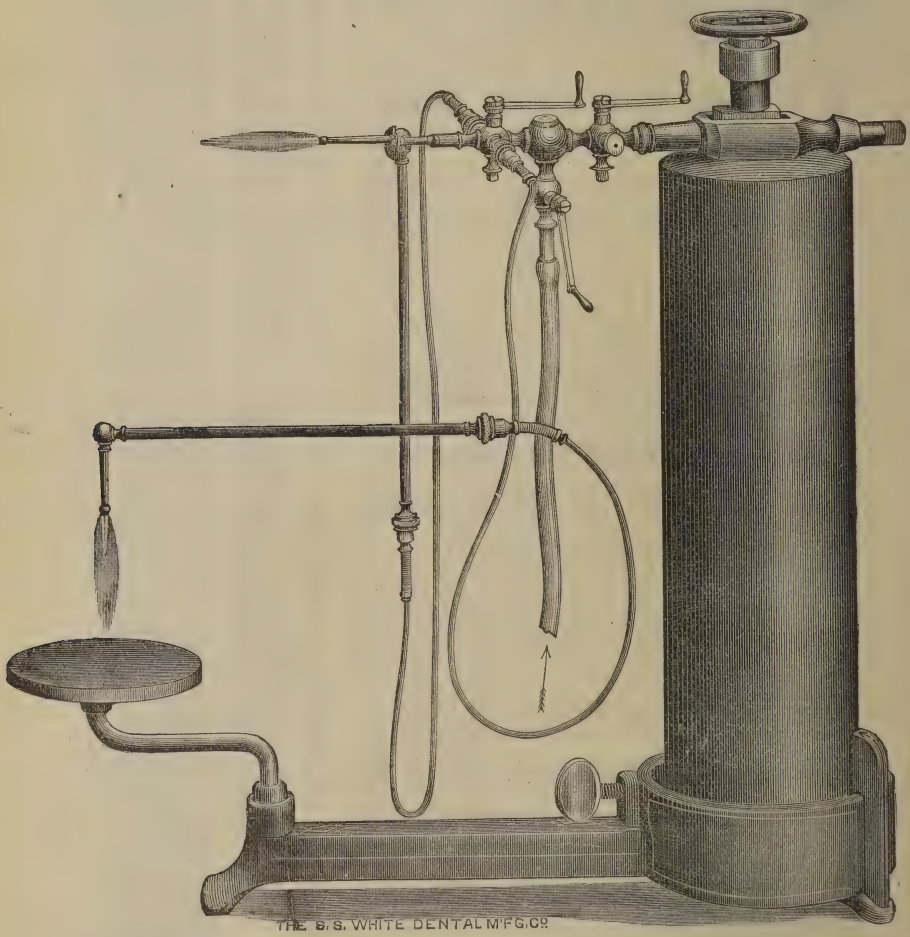
ONE DOLLAR PER BOX.

THE KNAPP BLOW-PIPE.

Invented by Dr. J. ROLLO KNAPP.

Patent applied for in England, France, Germany, and the United States.

This new Oxyhydrogen Blow-pipe consists of an iron stand in which is secured by a thumb-screw a 100-gallon cylinder of nitrous-oxide gas. By means of a yoke and set-screw the valve of the cylinder is connected with the tubes and valves of the blow-pipe in such manner that the proportions of the



mixture of nitrous-oxide and illuminating gases are under perfect regulation and control.

There are two pipe-nozzles, which may be used at the same time, or one at a time, according as a large or small flame may be desired. One pipe-nozzle is shown as hung upon its hook, and the other as if directed upon work held on the pivoted bracket-table. The largest piece of plate-work, the smallest piece of

crown-work, or the most delicate soldering with pure gold or its alloys can with equal facility and without exertion or over-heating on the part of the operator be accomplished in the least possible time by the use of this surprisingly effective, compact, and cleanly device. Dr. Knapp has been accustomed to do all his soldering of crown and bridge-work without leaving the operating-room. All the blow-pipe parts are nickel-plated, and the stand is tastefully japanned. The illustration is about one-third actual size. A detailed description with directions for use accompanies each apparatus sold.

Dr. H. W. Howe, Lawrence, Kansas, writes under date May 9, 1887: "It is perfect. I can solder anything from a full case of gold to a wire the size of a horse-hair. I fill caps and crowns for single teeth or bridge-work, as described by Dr. Knapp in the DENTAL COSMOS, perfectly satisfactorily to myself. In using both jets at one time on heavy cases of invested plate-work, the large flame for heating the case, the other to solder with, I am more than delighted with its perfect work.

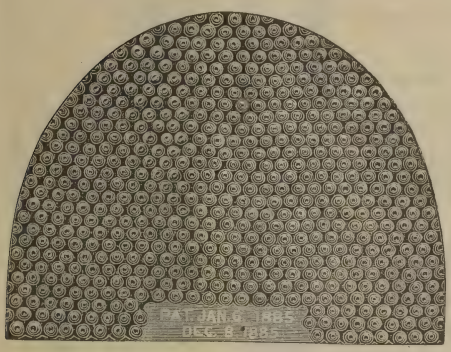
"I can utilize my platinum scraps, by either mixing with gold, or melting the scrap platinum. I make solid bands for crown-work by simply jointing the edges nicely and touching with borax, add a little filings from the same piece and have no trouble in melting the joint into one solid piece of the same karat. As to this 'little giant,' I cannot express myself strongly enough to give you any idea of my appreciation of it."

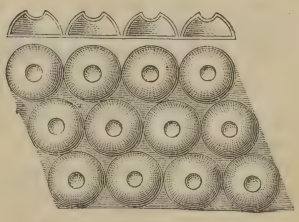
Price, without Cylinder of Gas - - - - - - $16.50

SURFACE COHESION FORMS FOR ARTIFICIAL DENTURES

Invention of Dr. Joseph Spyer. Patented January 6, 1885; December 8, 1885.

FIG. 1. FIG. 2.





A thin metallic Form, the surface of which is covered with minute papilliform prominences—shown in Fig. 2 magnified four diameters—which by displacement of mucus at the points of gum contact effect surface cohesion as if the denture were glued to the gums, yet cause no irritation and leave no marked indentations. Adapted for either upper or lower plates. By the aid of this device strong cohesion can be had with a narrow plate, and thus the sense of taste be left unimpaired. Lower plates so made are very firm. Put up in packages containing one dozen Forms size of Fig. 1, which can be cut for either upper or lower plates. Full directions accompany each package.

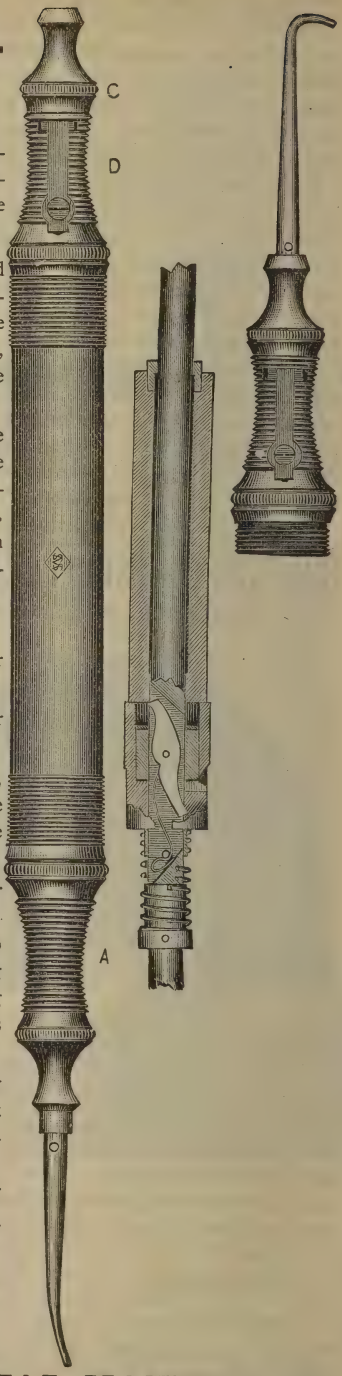
Price - - - - per box containing one dozen Forms $1.00
Rubber Cement - - - per dozen $4.00; per bottle .35

These Forms are also made of Gold with a thin lining of Silver, similar to our Vulcan Gold Lining, and for like use. Thickness of No. 120 foil.

Price - - - - - - - - - - - each $2.50

The Abbott Automatic Plugger.

PATENT APPLIED FOR.



This Plugger has both direct and back-action movements combined in one instrument, and is designed to avoid most of the defects found in other Automatic Pluggers.

The spindle, carrying the pivotal latch and tripping mechanism, together with the hammer, passes centrally entirely through the casing, and is socketed at both ends for bits, making one end direct or push-blow, while the other is a pull or back blow.

The force of the blow is regulated by the milled nose C, which is held in place by the holder D, which projects through the nose-piece, fitting into a circumferential groove. The two end pieces (or noses) unscrew from the tubular center casing, allowing the spindle carrying the mechanism to be removed.

Some of the improvements are :

1st. Less friction; no grating sound or rattling of springs.

2d. Less pressure required by the operator for the same force obtained.

3d. The mechanism is free from the case, it being mounted upon and guided by the spindle, thereby saving all friction on the case.

4th. A heavier hammer, with lighter springs, which has after long and careful experiments by many operators been found to be more efficient, and the hammer having hardened steel bushings as bearings, leaving the center free for the spindle to pass, reduces the friction to the minimum.

5th. The back-action movement being combined with the direct, in one instrument operated by the same mechanism, is therefore very much simplified.

All the parts liable to wear are made of hardened steel, and the instrument throughout is made in the very best manner.

Both the Cone-socket and Snow & Lewis Bits will fit the sockets.

Price, Nickel-plated, ... $9.00

THE S. S. WHITE DENTAL MANUF'G CO.

PHILADELPHIA, NEW YORK, BOSTON, CHICAGO, BROOKLYN.

UNIVERSAL SEPARATOR.

INVENTED BY DR. H. A. PARR.

Patented September 8, 1874; October 5, 1886.

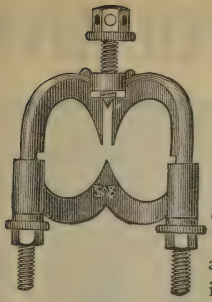
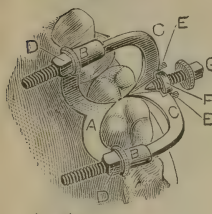


FIG. 1.



Dr. Parr claims that this Separator is universal in application and adjustment between teeth of all denominations in either jaw; it is therefore manufactured in a single form of the exact size of the cut. The mode of its application to teeth of all kinds is made obvious by the illustration Fig. 1. The Nuts D D can be moved with the thumb and finger, or the wrench, as required to force the wedging points between the teeth, and as the nuts move independently of each other, the arms can be more or less drawn to adapt the pressure to the varying curves of the teeth. Greater separating force will be obtained by turning the screw G.

With this device teeth may be regulated, or be held by wedges in the positions to which the Separator has forced them. It should prove of no small advantage that a single Separator will thus render practical service in every part of the mouth where two teeth are to be forced and held apart for any dental operation. For further description see report of First District Dental Society of New York in DENTAL COSMOS for August, 1886, page 509.

PRICE.

Universal Separator with Wrench, . . . $7.50.

GUM-RETRACTOR.

Suggestion of DR. T. F. CHUPEIN.

This instrument is designed to hold back the gum, or the rubber-dam, while filling those very troublesome cavities which extend under the gum on the labial surfaces of the anterior teeth.

The Retractor is to be held in the left hand of the operator, or by the assistant, and is so nicely shaped that its hold on the tooth-neck is close, to exclude moisture, and secure against slipping.

Ebony handles.

Price, ... each 75 cents.

ABSORBENT COTTON.

We guarantee this Cotton to be absolutely pure, free from any reaction and from all foreign matter. We call special attention to its softness and its freedom from the harshness which characterizes other brands on the market.

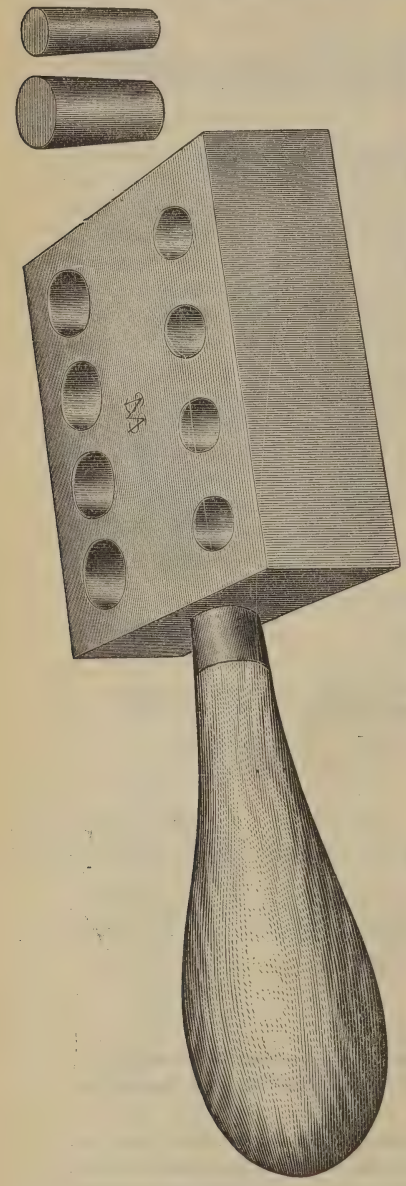
PRICES.

One-ounce box, ... 12 cents.
Two-ounce box, ... 20 cents.

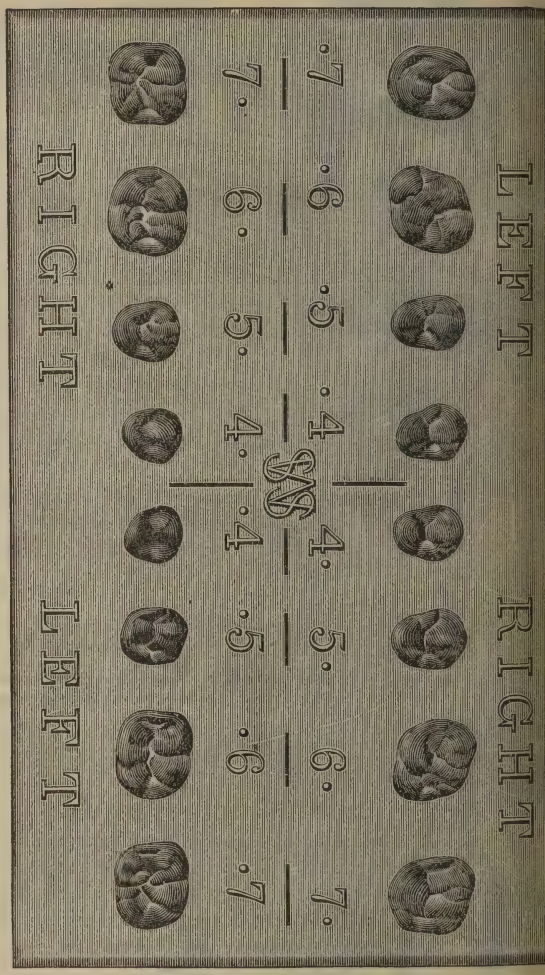
THE S. S. WHITE DENTAL MANUFACT'G CO.

PHILADELPHIA, NEW YORK, BOSTON, CHICAGO, BROOKLYN.

DIE-PLATE AND HUB-MOLD FOR MAKING CAP-CROWNS.



Hub-Mold.



Die-Plate.

These inventions were described in the DENTAL COSMOS for August, 1887, pages 482 to 485.

The Die-Plate is made of a special hard alloy and the Hub-Mold of cast-iron.

PRICES.

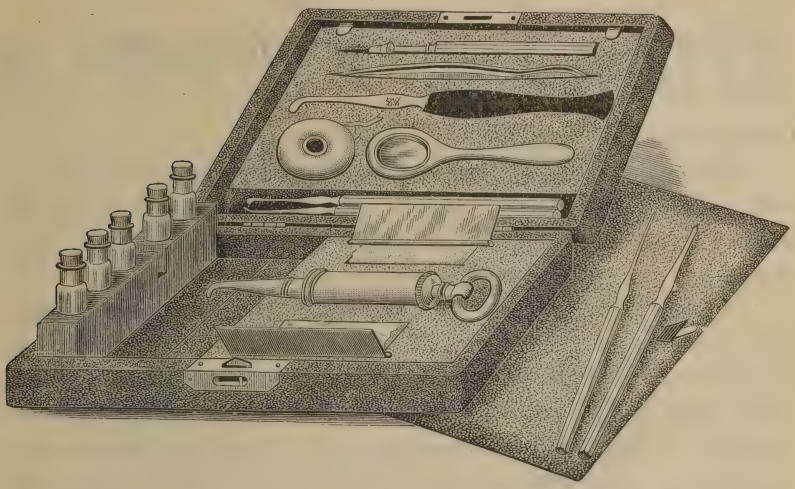
Die-Plate,	$5.00
Hub-Mold,	1.00

THE S. S. WHITE DENTAL MFG. CO.,

PHILADELPHIA, NEW YORK, BOSTON, CHICAGO, BROOKLYN.

DENTIST'S VISITING CASE.

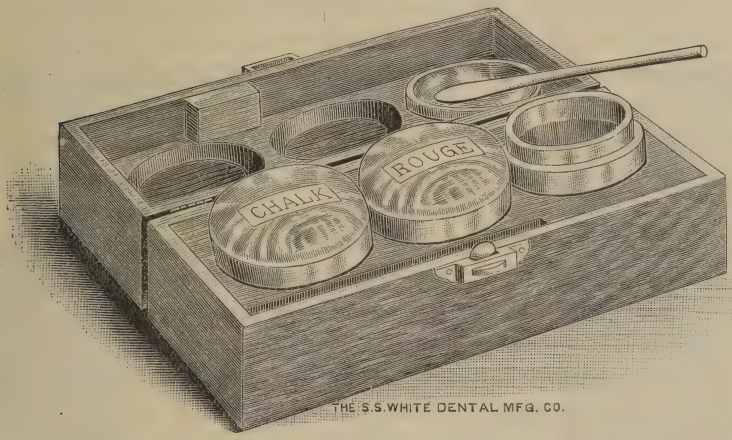
Suggested by Dr. E. C. Moore.



For use in case of emergency. It frequently occurs that dentists are called upon at night to treat teeth at a distance from the office. The Dentist's Visiting Case contains the necessary appliances and medicaments for relieving aching teeth, treating abscesses, etc. It is of convenient size for the pocket, and with it the necessary relief can be given until an appointment at the office can be made.

Price, ... $9.00.

OFFICE POLISHING-POWDER CASE.



A convenient device for keeping polishing powders for the office, combining also a ready means of preparing for use. A neat walnut box contains a tray holding three glass jars, the tops of which fit into recesses in the lid of the box. When it is desired to mix a small quantity of powder, the top of the jar, set reversed in one of the recesses in the lid, forms a convenient mixing-tray, which can be wiped out with a cloth or a piece of paper, as it has no corners to retain debris. It is suggested that glycerin is better than water for mixing polishing powders for use about the teeth, as it will prevent the powder from flying from the brush or other instrument with which it is applied.

Price, complete $1.00

THE S. S. WHITE DENTAL MANUF'G. CO.,

PHILADELPHIA, NEW YORK, BOSTON, CHICAGO, BROOKLYN.

To the Dental Profession.

GENTLEMEN:

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

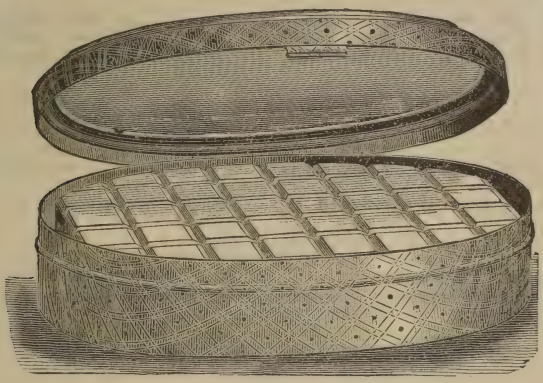
I. W. LYON, D.D.S.,

88 MAIDEN LANE, NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

DR. I. W. LYON'S TOOTH TABLETS



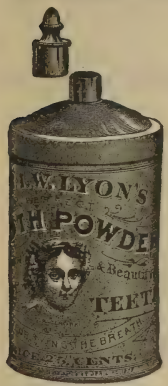
For Purity, Efficiency, Neatness and Convenience these Tablets have no equal as a Dentifrice. They are put up in Seamless Metallic Boxes, which are impervious to air and moisture, and may be carried on a journey without danger of breaking.

HIGHLY INDORSED BY EMINENT DENTISTS.

PRICE **50** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

DR. I. W. LYON'S

PERFECT TOOTH POWDER



ENAMELLED METAL BOX REDUCED IN SIZE.

This Powder is carefully prepared by an experienced dentist, familiarized by practice with the wants of the teeth. It is absolutely pure and free from acid, grit, or other hurtful substances, and is highly recommended by the most eminent men in the profession. It gives a *delightfully refreshing sensation* in the mouth, strengthening and healing the gums, and imparting a fragrance to the breath which is very agreeable.

Put up in an enamelled metal box with sprinkler top, free from the mishaps incident to glass or wood, and very convenient for use, especially in traveling.

ENAMELLED PAPER CARTON REDUCED IN SIZE.

PRICE **25** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

I. W. LYON, D.D.S., PROPRIETOR,

88 MAIDEN LANE, NEW YORK.

AKRON
DENTAL RUBBER

The materials of which this Rubber is composed
are prepared by new processes,
which insure

ABSOLUTE PURITY,

Resulting in a Product of Wonderful

DENSITY, FIRMNESS AND STRENGTH.

It is especially designed to meet the requirements of those who seek to produce the most perfect and artistic work.

It is exceedingly tough and light, and takes a beautiful polish.

Plates may be made very thin without danger of splitting or crumbling away about the edges.

It can be used with the best results for making partial lower dentures, an advantage which no other rubber possesses.

It has the unqualified approbation and endorsement of the profession everywhere, and never fails to give satisfaction.

It will cost you nothing to try it.

Send for samples and prices.

AKRON RUBBER WORKS,

AKRON, OHIO.

Sold by all Dental Depots.

11-5-AN-1

PARSON'S EUREKA SILVER ALLOY.

I am manufacturing and offering for sale a superior Amalgam or Silver Alloy, which has the following properties: It is a quick setting alloy, has great edge strength, therefore a superior alloy for mounting artificial crowns on natural roots. Fillings may be finished and polished in fifteen or twenty minutes after inserting, and retain their polish and silvery whiteness remarkably.

It does not spheroid or bulge like many alloys of inferior grade.

If you wish to use one of the nicest working alloys in the market, send for ½ oz., **$1.50**; 1 oz., **$3.00**; or 4 oz. for **$10.00**.

Let the profession give my alloy a fair and impartial trial, and I feel confident I shall receive a liberal amount of patronage. Respectfully,

DR. W. H. PARSONS,

Sole Proprietor and Manufacturer. WAMEGO, KANSAS, U. S. A.

TESTIMONIALS.

HOUSTON, TEXAS, April 26, 1885.

DR. PARSONS—*Dear Sir:* The Alloy came safely to hand. I am very well pleased with it.
Very respectfully, DR. S. E. JONES.

ROCHESTER, N. Y., April 13, 1885.

H. W. PARSONS—*My Dear Friend:* The boxes of Amalgam were duly received, and I consider it very nice indeed. Respectfully Yours, DR. S. G. WOOD.

RICH HILL, Mo., Feb. 9, 1886.

DR. H. W. PARSONS—*Dear Dr.:* Yours of the 5th inst. at hand, and in reply would say your Eureka Alloy is the best I ever used. Respectfully, C. E. JONES, D.D.S.

COLUMBIA, Mo., March 16, 1886.

DR. H. W. PARSONS—*Dear Sir:* I have used your Eureka Silver Alloy for one year, and am much pleased with it. I find its properties all that you represent them to be.
Respectfully, DR. N. HOCKENSMITH.

7-6-00-½

The Prophylactic Tooth Brush,

The Florence Dental Plate Brush

Recommended and sold by all live dentists.

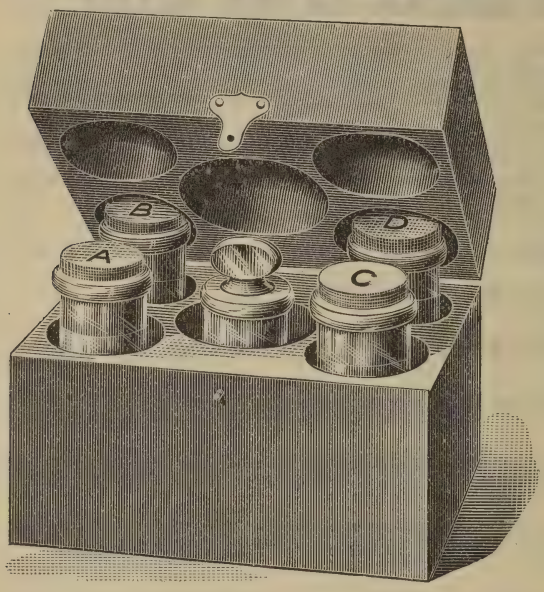
Order now, or, if before doing so you desire further information, write

FLORENCE MANUFACTURING CO.,

FLORENCE, Mass.

4-7-00-1

SMITH'S ADAMANTINE PHOSPHATE CEMENT.



INSOLUBLE.

TWO COLORS.

Price, - - $1.00.

Also in Cedar Cases, as shown in cut, containing four colors of Powder and one bottle of Liquid, glass-stoppered.

A, White; B, Brown; C, Yellow; D, Bluish.

PRICE, $2.00.

SMITH'S

Oxychloride of Zinc.

PRICES—Plain Form, one-ounce, - - - - - - each $1.00
Cedar Cases, as shown in cut, containing four colors of Powder and one bottle of Liquid, glass-stoppered, - - - - - " $2.00
A, White; B, Brown; C, Yellow; D, Bluish.

10-6-00-½ DR. J. H. SMITH, New Haven, Conn.

TO INVENTORS.

If you desire to patent your invention, enclose your address, *with stamp for reply*, and the undersigned will take pleasure in giving you the benefit of his *large* experience with United States and foreign patent lawyers.

B. M. WILKERSON, M. D., D. D. S.,

(Inventor of the Wilkerson Dental Chair, etc.)

12-6-00-½ No. 1215 Madison Ave., Baltimore, Md.

GLUTEN Flour and Special Diabetic Food, are invaluable waste-repairing Flours, for Dyspepsia, Diabetes, Debility, and Children's Food. No Bran mainly free from Starch. Six lbs. free to physicians and clergymen who will pay express charges. For all family uses nothing equals our "Health Flour." Try it. Samples free. Send for circulars to FARWELL & RHINES, Watertown, N. Y.

PURE PRODUCTS FOR DENTAL PRACTICE!

Among the preparations we manufacture which are of use to the Dental Profession, we have pleasure in calling attention to the following, which we believe, on account of purity and convenience, will commend themselves to our dental friends.

COCAINE.

Cocaine Alkaloid, pure in crystals; Citrate solution, 4 per cent.; Hydrobromate, pure in crystals and in solution, 4 per cent.; Muriate, pure in crystals and solutions, 2 and 4 per cent.; Oleate, 5 per cent., and Salicylate solution, 4 per cent. Also *Complete Cocaine Case*, embracing every essential for topical and hypodermic use. Send for pamphlet.

Pure MENTHOL, in crystals and pencils; pure CHLOROFORM; BROMIDE OF ETHYL; NITRITE OF AMYL PEARLS, invaluable in case of sudden syncope and a restorative of enfeebled circulation.

PARKE, DAVIS & CO.,

MANUFACTURING CHEMISTS,

DETROIT, MICH. New York Branch: 60 Maiden Lane.

1-7-AN-⅓.

ALFRED J. NICKOLDS,

Refiner and Manufacturer of

Dentists' Chemically Pure 1000 Fine

GOLD FOILS, GOLD PELLETS,

TIN FOIL, ETC.,

238 McDonough Street,

BROOKLYN, N. Y.

Special attention is invited to *Nickolds' Improved Soft Gold Foil* and *prepared Pellets;* pronounced the best article of Gold Foil extant.

7-4-AN-¼

ESTABLISHED IN 1845.

THOMAS DENNIS,

MANUFACTURER OF

GOLD LEAF

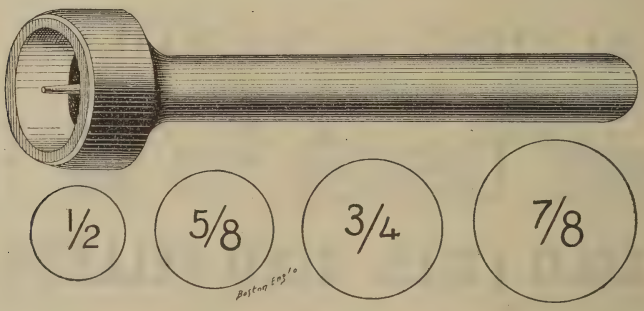
Dentists' Gold Foil, Gold Plate, Solder, Amalgam, &c.,

391 WASHINGTON STREET,

BUFFALO, N. Y.

Gold and Silver Refined. **Photographers' Waste Reduced.**

11-7-AN-½.



The above cut represents the Stevens Disk Cutter as now made, and as it was first introduced to the profession six years ago.

IT IS THE ORIGINAL PRACTICAL DISK CUTTER.

The circles represent the four regular sizes. A few odd minutes will suffice to make a great number and variety of disks at a trifling cost.

DIRECTIONS.—Select your sand, emery or flour of emery paper in such grades as please you. Give all but the very fine grades one coat of shellac varnish on the sand side. When dry, tack the sheets on some flat surface, sand side down, to prevent curling. Give the backs three or more coats of shellac and let them dry thoroughly. Cut on the end of a block, or what is better, on a piece of rubber and cloth belting ¼-inch thick fastened to the block. Place the sand side down and use a wooden mallet to strike the cutter.

These cutters are placed at the very low price of $1.00 each. Special sizes will be furnished for $1.50 each. They will be sent by express C. O. D., or by mail post-paid, on receipt of price.

S. G. STEVENS, Evans House, BOSTON, MASS.

OHIO COLLEGE OF DENTAL SURGERY.

ESTABLISHED 1845.

The Forty-Second Annual Winter Session begins October 4, 1887, and continues through five months.

The Faculty is composed of Dentists in practice, and every effort is made to make the course of instruction a thorough one in all branches strictly relating to Dentistry.

This Institution is the only Dental School in a city of 300,000 inhabitants.

Through its infirmaries, it therefore offers the best advantages in training students for practice.

For information and announcement, address

H. A. SMITH, D. D. S., Dean,

128 GARFIELD PLACE,

6-7-½-½. CINCINNATI, OHIO.

Pennsylvania College of Dental Surgery.

The regular winter session of five months begins Monday, October 3, 1887. Lectures and Clinics ten months in the year. Ladies admitted.

For announcement and further particulars,

Address,

C. N. PEIRCE, Dean,

1415 Walnut Street.

6-7-⅓-½. **PHILADELPHIA, PA.**

Minnesota Hospital College Dental Department.

MINNEAPOLIS, Minn.

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C. M. BAILEY, D. M. D., Professor of Dental Materia Medica.
EDWARD H. ANGLE, D. D. S., Professor of Dental Histology.
FRANK BURTON, M. D., Professor of Anatomy.
R. O. BEARD, M. D., Professor of Physiology.
CHAS. W. DREW, PH. B., M. D., Professor of Chemistry.
F. A. DUNSMOOR, M. D., Professor of Surgery. (Special.)
J. H. MARTINDALE, M. D., D. D. S., Professor of Oral Surgery.

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FRANK ALLPORT, M. D., Relation of Eye and Ear to Oral Diseases.
A. B. CATES, A. M., M. D., Relation of Motherhood and Female Diseases to Oral Conditions.
W. A. JONES, M. D., Nervous Diseases in Dental Medicine.

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DR. L. C. GOULD.....ST. PAUL
DR. J. A. BOWMAN.....MINNEAPOLIS
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Students of the Dental Department have access, without extra charge, to all the lectures and clinics in the Medical Department.

FEES.

Matriculation	$ 5.00
Tickets for the Regular Course	50.00
Demonstrators' Tickets	10.00
Dissection and Material	5.00
Final Examination Fee	25 00

Course of lectures will commence September 19, 1887, and continue until 2d Friday in March, 1888. For announcements and further information, address

W. A. SPAULDING, D. D. S., Dean,
506½ Nicollet Ave., Minneapolis, Minn.

7-7-AN-1

NEW YORK COLLEGE OF DENTISTRY.

1886-87.

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FANEUIL DUNKIN WEISSE, M. D., Professor of Regional Anatomy and Oral Surgery.
FRANK ABBOTT, M. D., Dean of the Faculty, Professor of Operative Dentistry and Dental Therapeutics.
ALEXANDER W. STEIN, M. D., Professor of Visceral Anatomy, Physiology and Histology.
FRANK LEROY SATTERLEE, M. D., Ph. D., Professor of Chemistry and Metallurgy.
JAMES BOND LITTIG, D. D. S., Professor of Mechanical Dentistry.

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CARL HEITZMANN, M.D., Lecturer on Dental Histology.
F. HASBROUCK, D.D.S., Lecturer on Nitrous Oxide.

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SILAS C. BLAISDELL, M.D., DOMINGO M. SABATER, A.B., D.D.S, M.D., Assistants to the Chair of Regional Anatomy and Oral Surgery.
ALFRED R. STARR, M.D., D.D.S., Assistant to the Chair of Operative Dentistry, and Dental Therapeutics.
C. M. BELLOWS, M.D., Ass't to the Chair of Visceral Anatomy, Physiology and Histology.
CHARLES E. H. PHILLIPS, D.D.S, Assistant to the Chair of Mechanical Dentistry.
W. TERRELL DAWSON, A.B., M.D., Assistant to the Chair of Chemistry and Metallurgy.

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	E. W. KNICKERBOCKER, D.D.S.	

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ALFRED R. STARR, M.D., D.D.S., Lecturer upon Operative Dentistry.
FRANK A. ROY, M.D., D.D.S., Lecturer upon Physiology.
MARTIN C. GOTTSCHALDT, D.D.S., Lecturer upon Chemistry.
R. McLEAN SANGER, D.D.S., Lecturer upon Mechanical Dentistry.

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DANIEL A. WILLIAMS, D.D.S., Mechanical Dentistry.
J. A. BRADSHAW, A.M., Secretary.

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Table of Contents—December.

ORIGINAL COMMUNICATIONS:

Contributions to the History of Development of the Teeth. Carl Heitzmann and C. F. W. Bodecker 621

Copper Amalgam. Geo. H. Weagant 625

Causes and Treatment of Dental Caries. Geo. P. Rishel 631

Two Dentists who do "Not Get On." W. Geo. Beers 635

REPORTS OF SOCIETY MEETINGS:

American Dental Association 638

Ninth International Medical Congress, Washington, D. C., September, 1887. 641

Southern Dental Association 647

Connecticut Valley Dental Society 650

American Dental Society of Europe 654

New York Odontological Society 659

EDITORIAL:

Vale! 1887 662

Educational Matters 663

Editorially 664

CURRENT NEWS AND OPINION 665

Index to Advertisements.

Horsford's Acid Phosphate	Cover Page 2	Sticta Pulm or Lungwort	Adv. Page 15
Charles H. Phillips Chem. Co.	" 2	Daly Gold Lining Dental Co	" 16
Dr. G. C. Daboll	" 2	Thos. Dennis' Gold Leaf	" 16
Underwood Spring Water	" 3	Dental Review	" 17
R. S. Williams	" 4	The Imperial Alloy	" 17
Listerine	Adv. Page 1	S. S. White Dental Manuf'g Co.	" 18–23
Dr. Robert S. Ivy	" 2	I. W. Lyon	" 24 & 25
Wanted	" 2	Akron Dental Rubber	" 26
A Sensitive Point	" 2	First-class Operator	" 27
Drs. Starkey & Palen	" 2	Parson's Dental Clamp	" 27
Seabury & Johnson	" 3	Florence Mfg. Co	" 27
Claudius Ash & Sons	" 4 & 5	J. H. Smith's Cements	" 28
Codman & Shurtleff's Imp. Inhaler	" 6	Dr. B. M. Wilkerson	" 28
American Dental Manuf. Co	" 7	Farwell & Rhines' Gluten Flour	" 28
New York Medical Journal	" 8	Parke, Davis & Co	" 29
Edward Rowan & Co	" 9	A. J. Nickolds	" 29
C. A. Timme & Co	" 10 & 11	University of Pennsylvania	" 30
Hardman's Amalgams	" 12	University of Maryland	" 31
Dunn's Medicinal Syringe	" 12	Minnesota Hospital College	" 32
E. Kearsing	" 13	New York College of Dentistry	" 33
Lawrence's Amalgam	" 13	Philadelphia Dental College	" 34
Wilmington Dental Mf'g Co	" 14	Chicago College of Dent. Surg'y	" 35
Pure Copper Amalgam	" 15	Hayes Anæsthetic Co	" 36

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VOL. VIII. DECEMBER, 1887. NO. 12.

NOTE.—No paper published or to be published in another journal will be accepted for this department. All papers must be in the hands of the Editor before the first day of the month preceding that in which they are expected to appear. Extra copies will be furnished to each contributor of an accepted original article, and reprints, in pamphlet form, may be had at the cost of the paper, press-work and binding, if ordered when the manuscript is forwarded. The Editor and Publishers are not responsible for the opinions expressed by contributors. The journal is issued promptly. on the first day of each month.

Original Communications.

CONTRIBUTIONS TO THE HISTORY OF DEVELOPMENT OF THE TEETH.

BY CARL HEITZMANN, M. D., AND C. F. W. BÖDECKER, D. D. S., M. D. S.

CONTINUED FROM PAGE 569.

A peculiar feature of both the papilla and the surrounding connective tissue is the presence of rusty-brown, needle-shaped crystals of hæmatoidine, sometimes clustered together in numerous masses. These are the result of a previous hæmorrhage, although it is not explicable how they appear in the papilla where the blood-vessels are extremely scanty, and just in the process of formation.

IV. Malformations and malpositions of the enamel organ. In the teeth of a rhachitic fœtus we not infrequently meet with enamel organs markedly differing from normal ones, which difference mainly consists in the lack of a myxomatous reticulum. This tissue appears in the shape of small, glistening granules, arranged either in the shape of clusters or an indistinct reticulum. The granules themselves vary somewhat in size, and among them larger granular corpuscles may be seen, which, without any regular

arrangement, are yet entitled to the name of nuclei. The meshes of this irregular reticulum hold an apparently structureless mucoid

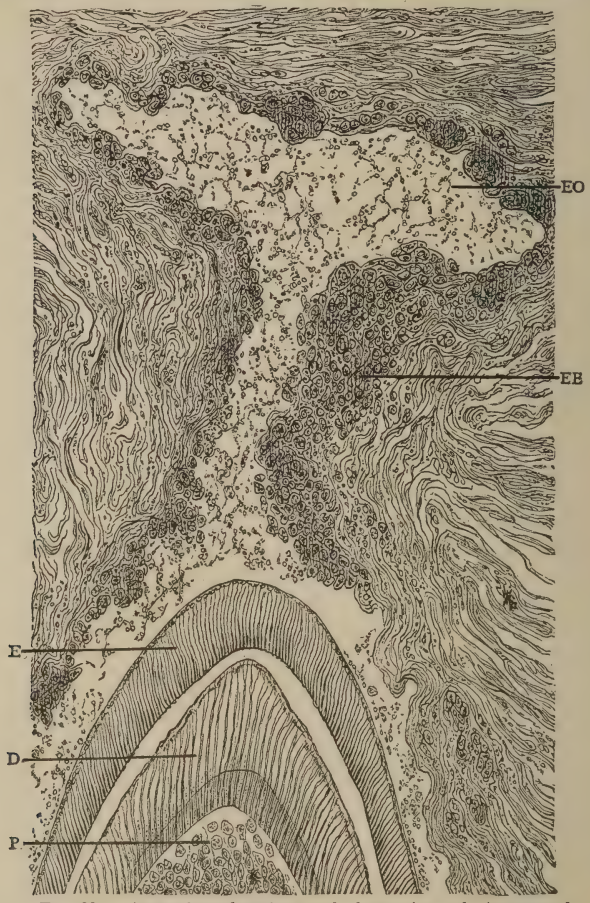


FIG. 38. *Anomalous location and formation of the enamel organ of a human fœtus seven and a half months old, affected with congenital rhachitis.*

EO. Enamel organ.
EE. External epithelium.
E. Enamel.
D. Dentine.
P. Papilla.

Magnified 100 diam.

basis-substance. Besides these irregular formations of the enamel organ, we sometimes meet with malpositions of it, either in a normal or an anomalous condition. (See Fig. 38.)

In this specimen the enamel organ is located entirely above a tooth which is likewise anomalous. It is widened in a horizontal direction, nearly parallel to the outer surface of the mucosa. It extends downward along the newly formed dentine and along the upper portion of the papilla. It is lined with medullary tissue and with clusters of epithelia, both being derived from the external epithelium, whereas the internal epithelium is completely exhausted for the formation of the enamel. The layer of medullary tissue arising from the external epithelium is broad, but short on one side, and narrow and much elongated on the other side of the enamel organ. The tooth is anomalous not in its size, nor in the stage of development, but on account of its devious papilla, resembling the teeth illustrated in Fig. 37. The specimen was obtained from the same embryo as those illustrated in Fig. 37. The papilla is constricted at the place where the dentine begins, which is at the neck of the tooth, below which the papilla suddenly widens and produces a bluntly elongated body of considerable size, composed of medullary tissue, and holding a number of clusters of hæmatoidine crystals, which are also seen in the neighboring fibrous connective tissue. Another misplacement of the enamel organ is illustrated in Fig. 36, where it is located beneath the base of the papilla.

V. Folds, convolutions and reduplications of the epithelium of the enamel organ. In both rhachitic embryo from which specimens have been taken, the writers have met with peculiar formations in the enamel organ which we propose to describe under the above heading. Near the external epithelium, which at this age is invariably split up, we have sometimes found concentrically arranged epithelial nests, or clusters of medullary tissue, imbedded in an otherwise normal myxomatous reticulum. Far more common than these formations, which depend upon a reduplication of the external epithelium, are foldings and convolutions of the internal epithelium. (See Fig. 39.)

The internal epithelium shows either simple indentations, which are sometimes also observed in normal teeth of the same stage of development. At other times there is a series of successive convolutions of the internal epithelium in whose neighborhood the myxomatous tissue of the enamel organ, as a rule, is in a medullary condition, which we found with and without a pronounced intermediate layer. Obviously, such sinuosities correspond to furrows

of the enamel organ, and very probably may cause the ridges and furrows often observed upon this tissue. The highest degree of reduplication of the internal epithelium is sometimes seen together

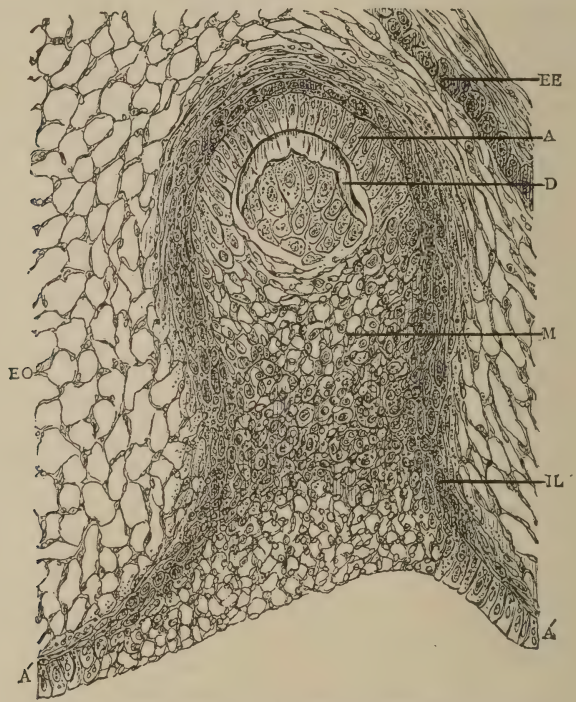


FIG. 39. *Reduplication of the internal epithelium of a rhachitic fœtus seven and a half months old, around a bud of dentine.*

EO. Myxomatous enamel organ.
EE. External epithelium.
A. Layer of ameloblasts.
IL. Interstitial layer composed of spindle-shaped elements surrounding the ameloblasts.
AA. Layer of ameloblasts toward an already formed enamel.
M. Myxomatous tissue approaching the structure of medullary tissue.
D. Dentine with underlying odontoblasts.

Magnified 200 diam.

with apparently isolated buds of dentine, surrounded by and inclosed in a layer of ameloblasts and myxomatous tissue. The dentine consists either of a narrow calcareous rim, or a cap in which we can observe distinct dentinal canaliculi. If the dentinal cap appears as a thin calcified ledge, it is composed of calcified medullary corpuscles, beneath which odontoblasts may be observed. If

the ledge of the dentine is broader and supplied with dentinal canaliculi, we notice close beneath it a layer of medullary corpuscles followed by a layer of odontoblasts, which usually are in the process of breaking up into medullary corpuscles. It may be possible that such formations are the starting points of the transverse furrows observed upon the labial surfaces of the temporary teeth of rickety children, although these occurrences are far more common on permanent teeth.

(TO BE CONTINUED.)

COPPER AMALGAM.

READ BEFORE THE CONNECTICUT VALLEY DENTAL SOCIETY AT MONTREAL, P. Q. JULY 22D, 1887.

BY GEO. H. WEAGANT, L. D. S., CORNWALL, ONT.

Copper amalgam is composed of pure copper and pure mercury in variable proportions. The less mercury it contains the more quickly it sets and the harder it becomes. When properly made it is exceedingly pleasant to work, fine-grained and plastic, and sets either slowly or rapidly, as we desire it, and are pleased to prepare it. It becomes very hard—harder in fact than any amalgam made from alloys. It is not known to shrink or expand in the least degree. It does not ball up nor change its shape in any way during the setting or afterwards, and finally, instead of having any injurious effect upon the teeth or surrounding tissues, it is decidedly beneficial to them, acting as an antiseptic or germ destroyer. But, although it does not cause discoloration of the teeth, the filling itself will quickly and emphatically become black—very black—upon the surface. It should always be carefully polished when hard, for, although polishing does not prevent its turning black, it is a polished black, and not so disagreeable and dirty looking as when left with a rough surface. It is, perhaps, also slightly deficient in edge-strength, although of this I am not very positive. It is extremely hard to drill and cut, and whenever there is a probability that it may be necessary, at some future time, to remove the filling, it would be advisable to use some softer amalgam. Immense quanti-

ties are used in Europe for filling decayed teeth, but it is comparatively unknown in this country. In fact, very few of our dentists have ever heard of it, and fewer still have seen it. In Europe it is employed chiefly because it is cheap; in America, because it is supposed to possess some qualities which make it, for special cases at least, the best filling known. I have never seen fillings of copper amalgam except those inserted by myself, or by my friends who had used material made and furnished by me. I have not been able to secure a sample of the European article, but Dr. Bogue, of New York, assures me that what is made in England and Germany is very dirty to work, soiling the hands and not giving satisfactory results. I have no doubt it contains some other metal than copper and mercury—probably zinc or oxide of iron.

The literature of the subject is very meagre, just sufficient mention being made of it occasionally, and at long intervals, to intimate that such a thing is actually used by somebody in the dental profession. In the preparation of this paper I have, therefore, had to rely almost entirely upon my own experience in its use.

The first mention I can find of copper amalgam is in the October number of the *Dental Cosmos* for 1859—nearly thirty years ago—but the editor, in a foot-note, says he would not recommend it for filling teeth, as "both of its constituents, copper and mercury, are highly objectionable." In 1874, Dr. Bogue, in a paper on Amalgams, read before the New York Odontological Society, mentions copper amalgam, and says: "It is quite difficult to prepare, is dark in color and its oxide is poisonous. Though extensively used in Germany, it is fortunately seldom or never employed in this country." At that time he had evidently not studied the material in the mouth, though he was then engaged in conducting a series of experiments with a large number of different amalgams, copper among the rest, to determine their physical properties and physiological action upon the human system. In 1875 he issued a pamphlet giving the result of these experiments. He found that copper amalgam, composed of copper precipitated upon mercury, was the only one which did not shrink or expand in the least. But as to its physiological action upon the system, he did not appear to be prepared to speak definitely, so far as copper was concerned. He conclusively proved that the mercury in all amalgams was without deleterious effect upon the system. However, in 1880, he states,

in discussing the amalgam question, that he considers copper amalgam to be a preventive of decay where other materials have failed, and looks upon it as next to palladium.* Now, we all know what Dr. Bogue thinks of palladium, and when he declares a thing is next to palladium he could not say more in its favor. He also gives a method for its preparation and manipulation, in which I fancy he must have made an error, as I was unable to prepare it in the same way. Dr. Rogers, of London, England, uses it to a great extent.† Dr. Pritchard, also of London, speaks very highly of Sullivan's cement, which is an amalgam of copper and mercury,‡ and Dr. Bödecker, years ago, saw great numbers of copper amalgam fillings in England; they looked quite black, but preserved the teeth well.§ Dentists there used it for cheap work only, on account of its looking so black, but it saved the teeth better than a more expensive amalgam. Dr. Flagg makes no mention of copper amalgam in his work on Plastics, although he has great faith in copper as a constituent of an alloy for amalgams. I am told that in his lectures before the students of the Philadelphia Dental College last winter, speaking of copper amalgam, he exclaimed, with emphasis, that "it was the stuff!" Dr. W. D. Miller, of Berlin, Germany, in his "Fermentation in the Human Mouth," as published originally in the INDEPENDENT PRACTITIONER, gives the result of a great number of experiments which tend to show that the "only filling at present in use which exerts a continual antiferment action upon the walls of a tooth and its immediate surroundings is the old copper amalgam; not only that, but the very substance of the tooth containing such a filling itself becomes antiseptic," and goes on to say that "if our only object is to check the destruction of tissue by caries, there is no material at present in use with which this object may be so surely accomplished as with a good copper amalgam."

Ever since amalgam came into use as a material for filling decayed teeth, experimentalists have been endeavoring to overcome its numerous defects. With these we are all only too well acquainted, and from the fact of their being so universally known it may be inferred that, so far, the grand desideratum has not been reached. The most serious faults with which amalgams are accused are those

* *Dental Cosmos*, Vol. XXII, page 197.
† *Dental Cosmos*, Vol. XXII, page 197.
‡ *Dental Miscellany*, Vol. V, page 365.
§ *Dental Cosmos*, Vol. XXII, page 197.

of shrinkage and discoloration, and these two defects seem to be, as it were, antagonistic to each other. Amalgams which discolor the most show the least shrinkage. The effect of shrinkage in an amalgam plug is to allow the fluids of the mouth to gain access to the cavity, and decay to reassert itself. We know that certain classes of teeth are eminently predisposed to decay under any filling; how much more likely would they be to do so, when the filling itself is predisposed to allow it? Now, when we consider that about one-half the teeth in the mouth are practically out of sight, it is not such a great matter if they are, to some extent, rendered unsightly by the presence of a black filling, if they are thereby physically qualified to resist the advance of the enemy. How often do we see amalgam fillings that have been inserted in shallow, hypersensitive buccal cavities in lower molars, in a few months getting loose or bulging out. We cannot always attribute it to imperfect manipulation, because, perhaps, we notice it more in our own work than in that of others, and possibly have had the same thing occur repeatedly in the same cavity, although the utmost care had been taken in every step of the operation. Nor does it always occur in teeth of poor quality. We can only accuse the material in the filling itself of being in fault, and notwithstanding the fact that gold, tin or gutta-percha would not answer as well for the case in hand, we are reluctantly obliged to use them. Then is the time in a man's experience when he longs for a material which will be thoroughly reliable, and which he can place in the cavity with all confidence that it will stay there—that it will neither shrink nor ball up. I fill such cavities with copper amalgam, and when, after two or three years, I have occasion to examine them, I cannot discover the slightest sign of shrinkage or bulging. In fact, a great many of these fillings, properly finished up, remain in such perfect condition that after two years the edge cannot be felt when the point of an excavator is passed over it, the joint being so close. I would like to ask what other amalgam will stand such a test as that?

As copper amalgam is unchanging in its character, and becomes so very hard, it may be placed in cavities having only slight retaining points, with a reasonable expectation of its remaining. All shallow cavities out of sight, such as we find upon the buccal, lingual, or approximal surfaces of molars near the margin of the gum, may be advantageously filled with it. Rapidly decaying wisdom

teeth and molars of a soft, chalky nature, seem to do better with a copper filling than any other. It may also be used under water, but gives better results if the cavity is kept dry. Having antiseptic properties, a layer of decayed dentine left under it is rendered comparatively harmless. As the margins of a copper filling are tight and impervious to the fluids of the mouth, no discoloration of tooth substance takes place, so that posterior cavities of badly decayed bicuspids, and even cuspids, may be filled with it, without danger of blackening or disfiguring any portion of the tooth-structure exposed to view. For the deciduous molars I know of no better filling than copper amalgam. As a general rule it is not practicable, nor is it good policy, to give as much time to the preparation of cavities in these teeth as we do for those of adults. From the mere fact of children's teeth decaying at so early an age, we are led to infer that dental operations must be kept up for a number of years at least, and our little patients must not be frightened or tired out by long, tedious operations at the very outset of their acquaintance with dental treatment. A filling which can be quickly and painlessly inserted in a cavity that has not been too carefully prepared, at the same time preventing decay better than gold, and one which is far more durable than gutta-percha or the mineral cements, is a filling we should by no means despise.

In case some may wish to make a little copper amalgam, I will give my method of preparation. I may say there are several ways of preparing it, but the following I have found to be altogether the best: Nearly fill a tall, narrow glass beaker, or other vessel of suitable shape, with a weak solution of sulphate of copper, say one part of a saturated solution to two or three parts water. Pour in enough mercury to well cover the bottom of the glass, and stand a clean strip or plate of iron in the mercury, allowing the end to project above the glass. Sheet-iron, such as is used for stove-pipes, will do for a small quantity, but heavier pieces are better. Pure precipitated copper in a finely divided state will at once become deposited upon the iron, and soon we shall find the mercury uniting with the copper and gradually creeping up the iron until the whole surface is covered with a film of amalgam. If the iron is placed for a moment in a weak solution of sulphuric acid immediately before immersing in the copper bath, amalgamation takes place more rapidly.

It must be allowed to stand undisturbed until the change in the color of the solution shows that all the copper is precipitated. Then with a syphon draw off the liquid and renew the sulphate of copper. This proceeding may be repeated as long as the mercury takes up the copper. When all the mercury has become amalgamated, scrape off whatever amalgam adheres to the strip of iron, pour off the liquid, and turn the mass of amalgam into a mortar. Rub and wash it thoroughly, allowing a stream of water to fall upon it from a tap, cleaning out all the free metallic copper and scales of oxide of iron. As soon as it is as clean as it can be made, place it in a chamois skin and squeeze out the surplus mercury. Then the washing and grinding in the mortar must be repeated until the mass again becomes soft, when more mercury can be removed. The greatest care must be taken to remove all the little scales and grains of iron, or the amalgam will be dirty to work, and the best results from it cannot be obtained. When the amalgam has been well worked and all the mercury possible squeezed out, heat it gently in an iron vessel. The first time this must be done carefully, as steam from water which is retained in it becomes generated and the mass will explode, flying in all directions. When the amalgam begins to get soft, rub in a mortar and again squeeze out mercury. This heating, rubbing and squeezing must be repeated again and again, until very little mercury can be removed and the amalgam is found to set instantly, and get very hard. It may then be made into little sticks or pellets, and laid away for use. To use it, place the quantity required in an iron spoon and heat it over a flame until mercury begins to show like sweat upon the surface. Then crush and grind the mass in a small mortar, and work together in the hand. If too soft, squeeze in a piece of chamois skin, using a pair of pliers if necessary. One soon learns how soft or dry to make it in order to get the best results. Do not throw away any of the scraps remaining, as they may be used over and over again an indefinite number of times, seeming to improve by age. Be careful not to heat too much, as some of the mercury volatilizes, leaving pure copper, which becomes oxidized by the heat and makes the amalgam dirty.

A weak solution of sulphate of copper is used instead of the saturated solution, as the precipitate is much finer and the amalgam requires less rubbing to bring it to shape.

CAUSES AND TREATMENT OF DENTAL CARIES.

BY GEO. P. RISHEL, D. D. S., HORNELLSVILLE, N. Y.

READ BEFORE THE JOINT MEETING OF THE SIXTH, SEVENTH AND EIGHTH DISTRICT DENTAL SOCIETIES AT BUFFALO, OCTOBER, 1887.

Vitality is a force resulting from harmonious functional activity. In a state of vigorous health there is not only a correspondence between waste and repair, but the vital energy may almost be measured by the rapidity of these physiological changes. Supply is not to be measured by the amount of food taken, but by the amount utilized in tissue building. Assimilation may depend, not only upon the general health, but upon such influences as climate, temperament, habit, and even the emotions. The splendid teeth of the hardy Scotchman are not, as popularly supposed, the result of an oat-meal diet, but are due to his environments, and to constitutional and temperamental attributes which enable him to assimilate the food taken. Teeth below medium in structure are the result of imperfect or non-assimilation of the materials so abundantly furnished, and to be found upon every table. It is not contended that tooth-structure may not be improved by a diet which contains more than the average amount of lime-salts. Our present knowledge of the laws which affect nutrition is too limited, and the clinical evidence in support of this theory too universal, to admit of doubt; it is, nevertheless, the opinion of the writer, that the food habit is one of the least of the many influences affecting the dental organs.

Magitot having constructed a map of various shades, for the purpose of showing the relative frequency of caries in the eighty-six military departments of France, during the period from 1837 to 1849 inclusive (13 years), and based upon exemption for loss of teeth, after discussing at length the influences of climate, altitude, food, etc., arrives at the following conclusion: We have already remarked upon the influence of race in the question which occupies us, and it seems evident that we must have recourse to considerations of *this nature* to explain the various tints of the chart.

Next in importance, and to a certain extent growing out of the peculiarities of race-development, is that of temperament. Under

its influence the trifacial—the nutrient nerve of the teeth—performs its functions. Under its influence the different varieties of tooth-structure are formed, and by reason of its influence may be seen the various conditions usually described as hard and soft decay, or black, yellow and white caries, and generally supposed to be a result of effects produced by different kinds of acids.

There seems to be considerable evidence that vital energy, whether displayed in a general way or made manifest by the ability of special organs to resist the encroachment of disease, is largely dependent upon and influenced by temperament. Time and space will not permit a thorough discussion of this phase of the subject, and I will simply add a quotation from an article written by me and published in the July number of the *Dental Cosmos* for 1882.

"Mal-nutrition, therefore, we consider to be the principal cause of defective tooth-structure. Depressing systemic influences, resulting from nervous irritability, and produced by high living, overstimulation, and the rush for wealth, place and power, are destroying not only the teeth, but the lives of the present generation. Even the children are not exempt, and from the time they are large enough to 'show off' at the competitive examinations of school-days, and the cramming process of college life, everything is on the high-pressure principle."

Patients of the nervous or lymphatic temperament suffer first and most, owing to the quick response to every influence of the one, and the slow but unresisting qualities of the other.

The stomach, when deprived of its vitality may be quickly dissolved by the gastric juice, which, during life, made no impression upon it, and in like manner the teeth, when deprived of even a portion of vital energy, become an easy prey to the hungry assailants constantly lurking within the oral cavity.

It is well known that during periods of sickness of a special debilitating character, those portions of the body possessing a low grade of vitality, as the teeth and hair, suffer most, and but very slowly partake of the reparative process, and not until the general system is far advanced in the way of improvement.

Caries is, therefore, primarily and to a large extent the result of imperfect assimilation, with its concomitants, lowered vitality and defective tooth-structure, modified and controlled by nervous influences, and last, but not least, to chemical disintegration, modified

and aided by micro-organisms, some of which have the power to produce acid fermentation.

Dr. W. D. Miller, of Berlin, who was the first to produce artificial caries with all the essential characteristics found in the mouth, and to whom we are indebted for much light upon this subject, says : "The first stage of caries of the teeth, *i.e.*, the extraction of the lime-salts, is, for the most part, caused by acids which are generated in the mouth by fermentation. Decalcification of the enamel signifies total destruction of that tissue; of the dentine there remains, after decalcification, a tough, spongy mass, which becomes subject to the invasion of enormous numbers of fungi (leptothrix threads, bacilli, micrococci, etc)."

The fungi produce anatomical and pathological changes in the deep layers, stop up the canaliculi, and necessarily lead, sooner or later, to the death of the dentinal fibrils. The outer layers of dentine, thereby deprived of nourishment, die, and fall a prey to putrefactive agents.

We may accordingly look upon caries of the teeth as consisting of three stages: (1) decalcification, (2) infection and devitalization of the decalcified dentine, (3) putrefaction of the devitalized dentine, though it would not be easy to say just where one stage ceases and the other begins.

It must be evident to the most superficial observer that the foundation of all treatment rests upon diagnosis, and that in proportion as we have accurate information in regard to the causes which, directly or indirectly, lead to the disease known as dental caries, are we, as a profession, competent to render valuable services to our patients.

The influences of race, temperament and habits of life, are for the most part beyond our control, but the *knowledge* of these influences will often aid us in deciding as to the best mode of treatment. That general condition of the dental organs, including loss of tooth-structure, frail walls and a tendency to inflammatory conditions, which in a patient of the nervo-lymphatic temperament suggests to the intelligent operator plastic fillings and the employment of the most careful means for lessening the effects of thermal changes, makes no such appeal when presented to us under similar circumstances, but by a patient of the bilio-sanguine temperament. In like manner that grade of pulpitis, which in the one instance

may be readily pronounced incurable and calls for immediate extirpation, may in the other be just as surely restored to life-long usefulness, and presents but few if any difficulties.

The first step in the proper treatment of dental caries consists of such persistent and intelligent use of floss silk, tooth powder and brush, as will secure comparative cleanliness, and of the daily employment of a mouth-wash which will secure a more or less complete sterilization of the oral cavity. Listerine will meet many, if not all, of the requirements, and may be used full strength or diluted. The formula for a valuable and much cheaper, though not so pleasant a mouth-wash, recommended by Dr. Miller and published in the September number of the INDEPENDENT PRACTITIONER, is as follows:

℞	Thymol,	gr. iv.
	Acid benzoic,	gr. xxxxv.
	Tr. eucalyptus,	ʒ iii ss.
	Aqua,	Fl. ℥ xxv.

Notwithstanding the great improvement in appliances, and the corresponding advance made in the mere mechanical treatment of caries, the importance of preliminary medicinal treatment must not be ignored. The first steps in the way of local treatment consist in the application of the rubber dam, the cutting away of frail and ragged margins, and the removal of such portions of decalcified dentine as can be successfully accomplished without pain. If sensitive, make an application of Naboli No. 2, allowing it to remain about five minutes, wipe out the cavity and apply No. 3 for six or seven minutes, and remove all traces of No. 3 by using No. 4, absolute alcohol, or chloroform. After using the hot air syringe it will be found that the final work of preparing the cavity causes but little if any pain. It should now be saturated with carbolic acid, dried, and again saturated with a solution of copal in ether, the margins polished, and the filling inserted.

The employment of Naboli as a pain obtunder is based upon scientific principles, and failure can only be due to improper methods. No. 3 is composed of glycerine, tannic acid and a minute quantity of chloral.

The irritation caused by the great affinity of glycerine for water, and the astringent properties of tannic acid (the combined influence of which extracts moisture and produces contraction of the

dentinal fibrils), is modified and controlled by the chloral. The power of the nerve filaments to transmit sensation is still further reduced by the application of absolute alcohol and hot air. The carbolic acid destroys the micro-organisms to be found in every cavity, and stimulates the pulp to increased efforts in its resistance to the encroachment of disease.

By reason of the dry and contracted condition of the dentinal fibrils, the copal varnish enters deeply into, and hermetically seals the ends of the dental tubuli, secures for the pulp comparative immunity from the injurious effects of thermal changes, and for the filling protection from pulp exudations.

TWO DENTISTS WHO DO NOT "GET ON."

BY W. GEO. BEERS, L. D. S., MONTREAL.

A good many honest dentists do not get on in the world if they have any rivalry. They wonder at it too, especially when they see the prosperity of men who have nothing but their cheek and assurance to back them. They are temperate; they do not even use tobacco. They go to church, sing in the choir, take up the collection—all, perhaps, from the purest motives. They get notoriety, but not patients. They are not hypocrites; they do not make long prayers and pious pretensions, but they use and enjoy all the collateral advantages of religious society useful to business, by having sittings in several churches of different denominations, accommodating themselves to each one with remarkable facility. I would rather believe these men sincere than hypocritical. It suits the temperament of some to go in heartily for every stir, and to mix in every popular movement. They would do it if they were not dentists, and cannot see why their profession should prevent them.

In spite of the temptations to worldliness, we have many real saints in dentistry, men who instinctively walk in the paths of righteousness, and who have none of the difficulty the rest of us encounter in battling every day and hour with the world, the flesh, and the devil. But, as in every other profession, we have men who take ten times more trouble to get friends and patients than to get

knowledge. They live in a fever of unrest, unless every day brings its new acquaintance; but they are content with the experience gained in the past, with the occasional scraps picked up by the way. I am impelled to these sentiments by a conversation I once had with just such a friend as I have described. Like the rest of us, he has his failings, but unlike those of some of us, they lean strongly to virtue's side. Yet he did not succeed in his profession, while he saw ignorant arrogance and assumption forging ahead of him, and younger men recognized at home and abroad as peers of the worthiest.

"Shall I become a quack?" he said to me one day. "If I were to lie, and deceive, and brag, my rooms would be filled by credulous yet confiding patients. Any man of assumption, no matter how ignorant, can make money that way in dentistry, though in the long run he is found out."

"You are on the wrong tack," I replied. "As a crowd is not company, neither is a large practice the true index of success. You could not play the quack or fraud if you tried. But just look at your office. You have not a modern instrument in it; you actually stick to the old key of Garrangeot; you extract all abscessed teeth; you devitalize all exposed pulps; you never extirpate the dead pulp; your only articles of the materia medica are arsenic, creosote and gum sandarac; you have neither a dental engine nor any of the improvements of operative dentistry since the days of Chapin A. Harris; you do not use the rubber dam; you know nothing of the revolution in dental pathology. In fact, you are a professional Rip Van Winkle, and you waken to wonder why the boys, and even the quacks, are going ahead of you. Public opinion will not stand still because you do. It will revere your integrity, but it will not patronize your stagnation. You must begin at the foot again and make up lee-way. You must read our journals, our text-books, and sit, Samuel-like, at the feet of any honest and able brother who will bother himself for your sake. Many a time they have bothered themselves for me and my ignorance. To me the greatest heroes are those of my own profession, who have made conquests in art and science which they willingly share with their brethren."

I converted that old fossil. He goes about now with a heart hungry for information, as if he were born again, and was in his teens in dentistry. People have observed the change. He is healthier

as well as happier, and has come to the conclusion that a man's good conduct and unimpeachable honor are no excuse for his professional stagnation.

Just over the way from him another *confrère* never "gets on," simply because he is a filthy hog. If I were a patient I would prefer to trust my mouth to the hands of an ignoramus rather than those of a dentist who is dirty. He is unclean in his person. You can see the high-water mark around his neck, the "lick-and-a-promise" around his ears. His nails have not been out of mourning for the dirt of his fingers since he was weaned. His moustache and whiskers are tell-tales of what he had for breakfast. His hair is full of dandruff, and seldom brushed. To the custom of wearing clothes, his patients are indebted for utter ignorance as to the condition of his skin. From the dirty shirt collar and front to his boots covered with mud, his clothes are bespattered with tobacco juice and plaster of Paris. His towels and napkins are shabby and soiled, and the head-rest of his chair is a musty mystery. His instruments lie uncovered and uncleaned, rusty from dust and the debris of dead dentine. You will be sure to see bloody forceps with the teeth they extracted still in their grip, as if he imagined it was an æsthetic exhibition. His spittoon is dirtier than any *shebeen* sink; old cigar stumps lie upon his operating stand; loafers, perhaps, hang about his rooms, spitting on the stove, with their heels up, to add the perfume of old leather to the incense about them. Dirty, tattered and vulgar illustrated papers, low, sensational literature, cheap and nasty books, coarse pictures mark the personal taste and character of the man. He is intensely one of those unpurified human hogs whom no cannibal would touch with a forty foot spoon, not even if he were boiled to the bones in pepper and brimstone sauce. His mind is just as impure as his body. He is low and slangy in conversation with ladies, vulgar and blasphemous with men. When skunks need human dentists, he may find occupation; but one sight and smell of him is enough.

This picture is not exaggerated. Happily, it is rare. But there are points in it that will prick the conscience of men who do get on, yet whose patients wish them all sorts of prosperity *with a little more taste.* John Wesley struck a key-note of success in dentistry when, in his sermon "On Dress," he emphasized the fact that "Cleanliness is, indeed, next to godliness."

Reports of Society Meetings.

AMERICAN DENTAL ASSOCIATION.

TWENTY-SEVENTH ANNUAL MEETING.

REPORTED FOR THE INDEPENDENT PRACTITIONER

CONTINUED FROM PAGE 587.

Section VI, "Physiology and Etiology," was called. Dr. H. A. Smith, the Chairman, reported that the Secretary of the Section was absent, and consequently the formal report which he should have presented was lacking. The Section desired to present two papers for the consideration of the Association, one by Dr. Ottofy, of Chicago, and the other by Dr. Peirce, of Philadelphia. The Section also presented a report reviewing the action of the Association in the matter of the two hundred-dollar prize offered for the best paper upon the Etiology of Dental Caries, at the meeting in 1882, and which was declared awarded to Dr. W. D. Miller, of Berlin, at the meeting of 1883, but which award was, by a small minority, at the close of the session, when nearly all the members had left, reconsidered. The report had been very carefully considered in the Section, and the members were unanimously of the opinion that the honor of the Association was involved, and it recommended the passage of a resolution reaffirming the award, and directing the Treasurer to pay the sum of two hundred dollars to Dr. Miller in accordance with the original action of the Association. The resolution was passed unanimously.

THURSDAY MORNING SESSION.

The regular order of the day was the selection of a place of meeting for 1888, and the election of officers. Drs. Reed, of Chicago, and Lucky, of Paterson, N. J., were appointed tellers.

Dr. Winder said that it had been suggested that the Association meet with the Southern Association at some point in the Southern States. There are but two or three places in the South which present the attractions of a temperate climate in August, with sufficient accommodations for the members who would probably be present. He urged the selection of Old Point Comfort, in Virginia, as the best place.

Dr. Brophy presented Mackinac, and said that it offered advantages which no other place could urge.

Dr. Cushing said that his correspondence had taught him that the southern members generally understood that there was an implied pledge that the Association should meet in 1888 at some point within the Southern States.

Dr. Barrett urged Old Point Comfort, and said that he believed a meeting at the South would prove of lasting benefit to dentistry, by bringing into more harmonious relations the members of the profession from the extremes of our country.

Old Point Comfort was chosen on the first ballot. The Association then proceeded to elect officers for the ensuing year, with the following result :

President—Frank Abbott, of New York.

First Vice-President—C. R. Butler, of Cleveland, Ohio.

Second Vice-President—T. S. Waters, of Baltimore, Md.

Recording Secretary—G. H. Cushing, of Chicago, Ill.

Corresponding Secretary—F. A. Levy, of Orange, N. J.

Members of the Executive Committee—A. W. Harlan, of Chicago; L. D. Shepard, of Boston; A. O. Hunt, of Iowa City.

A letter from Dr. J. Hall Moore, Chairman of the Executive Committee of the Southern Association was read, reciting the reasons why it was impossible for that society to meet with the Association in 1887, and expressing the desire that a union meeting should be arranged for 1888.

Dr. Barrett offered the following resolution, which was adopted :

Resolved—That the American Dental Association, recognizing the desirability of more intimate relations between the leading and representative professional organizations of American dentists, most cordially invites the Southern Dental Association to hold a union meeting with this Association next year. In furtherance of this end this Association has fixed upon a point for its next meeting which it believes will be convenient for both, and it desires that the committees of the two societies should agree upon a time that will be mutually satisfactory, and that this action will result in the largest and most profitable meeting of American dentists yet held.

Dr. Barrett then moved that the officers-elect of this Association be appointed delegates to the coming meeting of the Southern Association, with power to make all necessary arrangements. The motion was carried.

The consideration of the report from Section VI was then declared in order, when Dr. C. N. Peirce read a paper upon "The Evolution of the Human Dentition: A Comparison of the Development of the Teeth of Mammals."

In considering mammalian teeth, the essayist said it is necessary to have some knowledge of mammalian ancestry. The general structure of the earlier forms of life were compared and their analogy shown. In those mammals which have but one set of teeth, accepting the theory that the prototype is two dentitions, which of the two has been lost? Is it the deciduous or the permanent ones? The rudimentary character of the deciduous set would seem to indicate that they are the ones. The germs of the first permanent molars, arising *de novo,* are analogous in origin to the deciduous teeth. Children's teeth that are early erupted are not apt to possess strong recuperative or resistant powers.

Dr. Hunt—The writer of the paper seems to be in doubt whether "eruption" is the best term to use in speaking of the coming of the teeth. I think the term "emerge" will better express the condition, as "eruption" seems to imply a pathological rather than a physiological process.

Dr. Brophy—This affords an excellent opportunity for the Section on nomenclature to express its opinion, and I doubt not that it will present yet another term.

Dr. Abbott—My preference would be for the word "projection." If there were no continued growth at the end of the root, the teeth would not come forward. In cases of encysted tumors around the apex, there is no lengthening or procession of the tooth, and hence I believe that the appearance of the tooth above the gum is due to its projection by a force behind it.

Tomes claims that there is a special formation of osteoclasts which dissolve the ends of the roots when they are absorbed. I do not believe there is anything of the kind. He further says, that if absorption be due to pressure by the permanent teeth, that phenomena would be exhibited elsewhere. It is a fact that pressure on one side may produce absorption on the other. It is essentially an inflammatory process. As the permanent tooth is projected, it comes nearly in contact with the temporary root, and as a consequence of the pressure an inflammation ensues, which results in its absorption or melting down. The paper states that the absorption commences

at the end of the root and proceeds directly onward. If the permanent tooth is projected at the side of the temporary one, absorption commences there.

Dr. How—Suggested the word "advance."

Dr. Darby—Neither of these words seems to convey the exact meaning. It would not be exactly proper to say that a child had advanced, or projected its teeth.

Dr. Guilford—Tomes declares the typal form of tooth to be a cone. Others pronounce it a wedge. How shall we account for the break between the different forms of teeth—the centrals, and the cuspids, and the bicuspids. Tomes believes that there was originally a tooth between the cuspid and the bicuspids. It has been asserted that the first permanent molar was primarily a persistent deciduous tooth.

Dr. Peirce—Dr. Black asserts that there is no perceptible difference in the absorption of the temporary and permanent teeth, but that which goes on in a tooth that has lost its pulp is quite a different affair. Adjourned.

(TO BE CONTINUED.)

NINTH INTERNATIONAL MEDICAL CONGRESS, WASHINGTON, D. C., SEPTEMBER, 1887.

SECTION XVIII, DENTAL AND ORAL SURGERY.

REPORTED FOR THE INDEPENDENT PRACTITIONER, BY "MRS. M. W. J."

CONTINUED FROM PAGE 592.

TUESDAY AFTERNOON SESSION.

Dr. J. E. Cravens, of Indianapolis, read a paper entitled "The Management of Pulpless Teeth."

Dr. Cravens was opposed to the injection of medicines through the root canals, as liable to saturate the dentine and prove injurious to the pericemental membrane. In a pulpless tooth the cementum still maintains a vital connection between the dentine and the pericemental membrane, affording collateral sustenance and preserving the tooth in comparative health, comfort and usefulness for many years; if the pericementum is impaired or its function perverted,

then the pulpless tooth becomes a dead body and offensive to the economy. The apical space—a dense, dark crypt—if invaded by a bristle thrust through the nerve canal, admits the light to what then becomes a battle-field, a *champs de mars* for hobby horses with their riders astride. The idea seems to prevail that the root canal was designed solely for the introduction of remedies, but the very nature of the parts suggests that it is impracticable to accommodate much medicine. The pericementum is closely confined between the cementum and the walls of the alveolus, with barely room for the membrane in health. If inflamed it thickens, and needing more space it lifts the root in the socket, the elevated crown becoming painful in occlusion. If medicines are forced in where there is no room, we must have pericemental inflammation, followed by alveolar abscess. Medicines are applied to the walls of the cavity, and not allowed or designed to go beyond; but why ? If the objective point is the congested membrane, the remedies must go through the apical foramen to meet it; but the point of inflammation is sometimes quite remote from the foramen, in molars being usually confined to the angle at the junction of the roots; decay does not locate it. With a large number of practitioners pulp-canals must always be treated before filling. Medicines are injected; the tubuli absorb the fluids, and by capillary attraction they are carried to the periphery of the root; the pericementum is invaded, and the medicines work down along the outside of the roots. In a few weeks—or perhaps years—the effects are seen in an irritating exudation through a fistulous opening, or at the gingival borders, the individual detecting the medicine which was placed in the pulp-canal years previously. Finally the pericementum is hypertrophied, its function as conservator of the cementum is perverted, and the tooth is cast off as a dead body.

The methods of this paper require that the apical end of the canal be closed as soon as free from pus or other fluids and obstructive matter. Clean the canal till laudable. Broken down pulp-tissue should be removed by barbed broaches, gaseous contents by mechanical displacement. Absorbent cotton on a broach, making a swab small enough to pass easily through the canal, avoiding compression, will allow the gases to pass by and out, pure air going in to satisfy the vacuum. This simple process will effectually cleanse a root-canal of sulphuretted hydrogen and other gas. The

fluid contents will be absorbed by the cotton of the swab, which should be frequently changed, pressure being carefully avoided that nothing be forced through the apical space. This method recognizes the sanctity which hedges the apical space. Whatever enters there is an impudent intruder, and we get a prompt expression of the indignation of the offended membrane. If pus is formed by any disturbance, it should discharge through the pulp-canal; that is its natural exit. It can be cleaned away by the operator as described, till the canal is laudable, when the apex may be permanently closed. If it forms a fistulous opening, the fistula will accomplish the drainage of pus from the abscess, and it will heal when no more pus is formed, without medication. If the tooth is too sore to allow of opening the pulp-cavity, it is better to wait for a decline of the soreness than to force to a conclusion; in the end this will prove more expeditious. For deciduous teeth the method is much the same, but fill them with phosphate of lime in the magma state, but do not put any medicine in the pulp-canals of deciduous teeth; force is inadmissible, and do not fill close to the end of the root. The roots of deciduous teeth are resorbed after they have been filled with phosphate of lime, and fistulas in the gum surrender in one or two days. While admitting that this system is at right angles to the tenets of the profession, Dr. Cravens hoped it might be given a fair trial, and if found as satisfactory to others as it had been to him, they would gladly "throw physic to the dogs."

DISCUSSION.

This paper raised a storm of severe criticism and disapproval. The discussion was opened by Dr. Thomas Fillebrown, of Portland, Maine, who presented a formal paper. He said that while over-medication was no doubt harmful, it is difficult to say what nature unaided might do. Great and uniform success is claimed by many for non-interference, but there are many different standards of success. In cases of chronic abscess with no fistula, he would not dare to risk closing the apex at once. He would not expect to stop the discharge by closing its outlet, and there would be danger of pyæmia, which he would not have the temerity to risk. He thought when a tooth was "too sore to open," the true remedy was to open at once, saving days of agony by a few moments' pain, and avoiding the process of suppuration by allowing the pent-up contents to es-

cape. The "apisal" space was to him a myth. There was no space between the cortical substance of the alveolar wall and the root of the tooth, unless excavated by art or through absorption by disease. Hypertrophy, discoloration, etc., are more frequently the results of retained pulp than of medication; it is not fair to charge to medication what is due to percolation or osmosis. The treatment of deciduous teeth laid down by Dr. Cravens was not consistent. He says, "use no medicines in deciduous teeth," and then proceeds to fill them with phosphate of lime—an antacid and insoluble. What becomes of it when the roots are resorbed ?

Dr. W. C. Barrett, of Buffalo, N. Y., was astonished at the presentation of such a paper before a world's convention of dentists. He protested against its reception or consideration as an indication of the culture and knowledge and professional training of American dentists. The paper was peculiar in every way. Its etymology was singular and its orthography must be *sui generis*, while its pathology outraged all modern progress. It entirely ignored all the advances of the past twenty-five years. Why any one should go back a generation to revive the long-ago exploded theories of the dark ages, and then parade them before a Congress supposed to be made up of the best minds in dentistry, and to be an exposition of all that is latest and best in professional knowledge, was quite incomprehensible to him. Had the paper been presented before some local society, he should only have entered a mild protest, and taken exception to the "system." But when read before such a meeting as this, he did not feel that such lack of acquaintance with modern practice could be too severely denounced.

In a septic condition of a tooth-pulp, the first thing to be done, under all circumstances, is to give egress to septic matter. The next step is disinfection; this is to be followed by a germicide, and when the whole is rendered aseptic and time has been given for inflammatory products to be removed, the cavity should be most thoroughly sealed against re-infection. That is all there really is to the treatment of septic teeth. The assertion that toxic matter can be neutralized by merely mechanical measures must be made either ironically or without consideration of the subject.

Dr. A. W. Harlan, of Chicago, said that the paper read like a mediæval romance. Repudiating modern advances in antiseptic surgery and bacteriology, the author of the paper banishes mephitic

gases by swabbing the canals whence pus is flowing, rendering canals "laudable" in that manner, forgetting that the entire dentine becomes saturated and polluted. The paper is too far behind the age to go forth from this Medical Congress as the opinions of the advanced American dentist of to-day. It is absurd, to say the least, to suggest that we should decry all antiseptic and disinfectant treatment, and go back to the mere mechanical methods of forty years ago. If odors could be mechanically displaced (which we deny), if we stop the drainage from the sac and fill without disinfecting, disaster will surely follow. The paper assumes that it is the practice of the American dentist of to-day to force escharotics into and beyond the apex, when there is no fistula! Is this true? This "system," as a system, is unworthy of our consideration, and unworthy of our knowledge of microbian diseases.

Dr. W. H. Morgan said that the gentleman who had just taken his seat was mistaken in stating that such a "system" had been in vogue within twenty or twenty-five years. If he would go back and read papers published in the journals of 1854-5 he would find that they advocated every therapeutic principle adopted to-day; it was true they did not have many of the remedies used now, but the principles involved were the same, and were as well understood. We have been told not to fill the roots of deciduous teeth, because the roots would be resorbed and the metal left projecting; that is, we would have physiological action in a dead body! A dead tooth may be broken down by chemical action, but not by a physiological process. The only remedy for pulpless deciduous teeth is extraction.

Dr. Butler, of Cleveland, Ohio, could not conceive that any one posted on pathological principles could project such a "system" except with the object of bringing out the opposite side. If this was his object, he had certainly succeeded. He hoped our friends from the other side of the Atlantic would understand this. Certainly the results reached could not have been brought out in any other way, and we should take a charitable view of the paper because of the result.

Dr. Harding, of Shrewsbury, Eng., said that since he had been in America, he had seen much to excite his wonder and admiration, but nothing had astonished him quite as much as the paper under discussion. In England they were imbued with the ideas promulgated by Prof. Lister, based on the researches of Tyndall and others,

on the subject of pus and septic matter. To be gravely told that septic products can be gotten rid of by mechanical treatment excites both interest and astonishment. He must think, as one gentleman had suggested, that the paper was written solely with a view to excite discussion, and he was glad to see this expression of general opinion among American dentists. When pus is formed from dead pulp it is certain to infiltrate all the structures around, and as long as germs have pabulum to feed upon they will be reproduced. The opinion that germicides applied to the interior of the canal will produce inflammation of the periosteum is wholly unfounded.

Dr. Cunningham, of England, had hoped to lay before the Section statistics of over five hundred cases filled by the "immediate" method, which might induce them to look more leniently upon the essayist of the afternoon. Unfortunately his papers had not arrived, but he asked permission to lay the matter before them later, as his diagrams and figures might add interest to the discussion.

Dr. Cravens postponed his concluding remarks until after the statistics spoken of had been presented.

Dr. T. E. Weeks, of Minneapolis, read a paper on "Matrices as Adjuncts in Filling Teeth," defining the use of the matrix as the conversion of compound cavities into simple ones having four walls. He spoke of the impossibility of using any one shape or form to the exclusion of all others, and with the aid of a series of charts described a large number of the patents now on the market, showing that, though very numerous, they all depend on the application of a few principles, variously modified by the use of flattened wire, strips and bands, entire circles, partial loops, etc., held in position by wedges, solder, shellac, springs, set screws, bolt and nuts, etc., the essential requisites to constitute the best being close adaptation to the tooth, adaptability to the greatest number of cases, non-corrosive material, and pliability sufficient to admit of flush fillings at the margins of cavities. With all the variety on the market, the dentist still needs the ingenuity to devise and the ability to make, on the spur of the moment, out of material at hand a matrix for the case that nothing ready-made will fit, and not expect to use a matrix in every case, guarding against riding a hobby till it throws him into the ditch.

Dr. S. H. Guilford, of Philadelphia, opened the discussion. He said that the object of the matrix being to enable us to perform a

difficult operation with less difficulty, it was unnecessary to argue in favor of its value, though there are men who totally condemn them, their arguments being that the space cannot be absolutely filled, that there is a surplus of material where it is most difficult to draw it off ; that the portion built against a matrix is unlike the natural contour of a tooth, etc. But unless an operator has the skill of a Marshall Webb, which few can hope to attain, with the aid of the matrix both time and material are saved and the work much simplified. The subject was not further discussed.

(TO BE CONTINUED.)

SOUTHERN DENTAL ASSOCIATION.

NINETEENTH ANNUAL SESSION AT OLD POINT COMFORT, VA., 1887.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY "MRS. M. W. J."

CONTINUED FROM PAGE 596.

Thursday was set aside for clinics, beginning at 8 A. M.

Dr. Younger, of California made two implantations—a lower central incisor, and a superior bicuspid.

Dr. A. E. Baldwin, of Chicago, demonstrated his method of immediate root-filling, with hot air treatment, devitalizing and filling the root of a superior bicuspid with gutta-percha. At a subsequent clinic, Dr. B. S. Byrnes, of Memphis, filled in the same tooth a compound crown and approximal cavity with gold, using soft foil in ribbons. He used his new hand-piece, of which the special feature is its ready adjustment to the engine. The force of the blow is given by a heavy hammer instead of a strong spring, and is regulated by a spring under the index finger, which increases the force at will, or checks it altogether.

Dr. Geo. Evans, of New York, gave several clinics with his seamless gold contour crowns, which are made in a mold and burnished down *à la Herbst*. In one case the roots were prepared and the crown made, ready for setting, in twenty-five minutes. Dr. Evans also exhibited specimens of his removable-plate bridges, gold crowns with removable porcelain fronts, and an instrument consisting of a solid silver bulb, with broach attached, for drying out root-canals and dentine.

Dr. W. N. Morrison, of St. Louis, filled, with gold wire, nerve-canals in tortuous roots.

Dr. Morgan, of Virginia, used Dr. D. B. Freeman's new double-loop spring clamps for the rubber-dam.

Dr. L. P. Dotterer, of South Carolina, placed on the roots of a superior bicuspid an all-gold crown, made at the chair.

Dr. H. A. Parr, treated and filled and crowned the abscessed roots of two central incisors, over which, without any treatment, a plate had been worn for seven years, the crown having been broken off by accident.

Dr. J. J. R. Patrick, of Belleville, Ills., exhibited his method of making crowns.

Dr. Genese, of Baltimore, gave several clinics in prosthetic dentistry with his new pinless teeth, using Rishel's Automatic Vulcanizer. He also demonstrated the practical value of his two new appliances, a syphon tongue-holder and a speculum and cheek distender.

Dr. J. G. Morey was on hand with his nerve crown drills. These drills have spiral cutting wings with a thin edge, which discharges all debris, and a triangular reamer with a non-cutting, cone-shaped point, which prevents piercing the foramen; the shank is also pliable, enabling the drill to conform to curvatures of roots.

In the S. S. White exhibit, Dr. A. T. Starr was stamping up crowns with their die-plate and hub-molds. They also show the vulcan lining for vulcanite plates, a combination of gold and silver sweated together and rolled and hammered into foil, giving a pure gold surface next the mucous membrane at a cost of not more than eighty cents per plate.

The Mann Vulcanizer; the Motor and Battery of the Detroit Motor Co.; the Shaw Dental Engine—an English patent with fixed upright, double-grooved pulley and duplex driving-spring; the Partz Acid Gravity Battery; Bing's Bridge Teeth; and a new slip-joint connection for coupling all hand-pieces, or the right-angle attachment, by a spring-catch, constitute the principal new items in their exhibit.

THURSDAY EVENING SESSION.

Dr. P. Beadles, of Danville, Va., read a paper, entitled "The Old and the New."

The discussion of Operative Dentistry was continued by Drs. Winckler, McKellops, Morgan, Storey and R. Finley Hunt.

A paper from Dr. Hilzim, of Mississippi, on "Mechanical Dentistry," was read by title. Dr. W. D. Dunlap, of Selma, Ala., read a paper, entitled "Dental Hygiene; A Study that Belongs to the People."

Dr. Dunlap urged the importance of this much neglected branch, and especially the duty of the dental profession to instruct the people in the value of the teeth. They need specific instruction, and books should be prepared to be used in schools, inculcating correct hygienic principles. It should be the duty of teachers to require not only clean hands and faces, and well-brushed hair, but also clean teeth. If children were properly instructed, dental operators would be called in earlier with obvious advantage. The aid of legislatures and school-boards should be enlisted to make the study of this special branch of hygiene compulsory. He would also have it made the duty of certain practitioners to go into the field and instruct the people, through schools, the Y. M. C. A., etc., having them duly authorized and supported by State Dental Societies.

In this connection, Dr. Dunlap also read a communication from the State Society of Alabama on this subject, which was laid over for action next year.

This subject was discussed at considerable length, Drs. R. Finley Hunt, W. N. Morrison, J. Y. Crawford and others endorsing the author of the paper in his views of the great importance of the subject.

Dr. Hunt thought the trouble lay not so much in lack of cleanliness or care of the teeth, or improper diet, as in defective assimilation.

Dr. Morrison thought the teeth were suffering from lack of exercise, due to the use of artificially prepared foods requiring little mastication.

Dr. Hunt did not think we would hope to accomplish much in the present generation, but it was our duty to work for the future, the question of heredity entering largely into the matter.

Dr. W. H. Morgan, Dr. Storey, Dr. Hodgkins and Dr. W. H. Atkinson also took part in the discussion.

At the close of the discussion, Dr. A. W. Harlan, of Chicago,

addressed the Association, on the part of a committee from the American Dental Association, on the subject of a joint meeting of the two Associations, and Drs. Knapp, Catching and E. S. Chisholm were appointed on the committee. The joint committee agreed upon the following report, which was adopted by the Association :

First, That the invitation of the American Dental Association to hold a meeting for social and scientific purposes be accepted.

Second, The two committees agree to recommend that Louisville, Ky., be the place, and the fourth Tuesday in August the date for holding such union meeting.

Third, That all details of arrangements for the consummation of this object be placed in the hands of the officers of the Associations, with power to act.

Prof. G. W. Hubbard, Dean of the Meharry College, of Tennessee, was introduced to the Association on Friday morning. He spoke at some length in behalf of the institution he represents, soliciting the coöperation of the Association in the professional and scientific education of colored youth, especially in the dental profession. He was listened to with great interest.

(TO BE CONTINUED.)

CONNECTICUT VALLEY DENTAL SOCIETY.

SEMI-ANNUAL MEETING, HELD AT MONTREAL, P. Q., JULY 19 to 21, INCLUSIVE.

REPORTED BY GEO. A. MAXFIELD, D. D. S., SECRETARY.

CONTINUED FROM PAGE 597.

Dr. Geo. A. Maxfield read a paper on "Hard Rubber and Corundum Disks and Wheels." (See page 520, October number.)

Dr. Shepard—As a matter of history, let me say that Prof. Arthur had a patent which covers disks one-half inch or less in diameter, but the primary conception of the disk is back of that. About six years ago Dr. Dibble brought them around and I bought one, but when he came round again he told me that he could no longer make or sell them. He was enjoined under the Arthur patent, and I could not get them from any one else, because the owner of the

patent did not make them. Dr. Northrop deserves more credit in this connection than any other man. He made disks and wheels, but Dr. Arthur afterwards got the patent on disks. That cut the profession off from a free use of them, but we have had the free use of wheels and stubs of any shape or size. I do not know whether these disks of Dr. Maxfield's would be an infringement on any patent or not.

Dr. Maxfield—In the *Cosmos* the hard-rubber and corundum disks are advertised, but their being patented is not mentioned. Celluloid disks are advertised as patented. I have here some eighty disks and wheels all ready to place in the vulcanizer, and I will pass them around. In using the disks great care must be taken, as they are very brittle and will easily break. Here is a piece of glass which was cut through in two places with the disk which is attached to it. The remark has been made to me, "I have not the time to make those things; it is cheaper for me to buy them." Now, while this may be the case with some it is not so with all. I had been using disks about a year, when on looking over my case one day I counted over twenty broken hubs, representing a cost of over five dollars, and I said to myself, "Here is a leak that had better be stopped." The disk cutters I use are those made by Dr. Stevens, and here are three different sizes.

Dr. Barrett—I use these cutters of Dr. Stevens. They are so perfect that nothing better can be asked for, and I would not be without them.

Dr. Maxfield—I spoke of vulcanite disks and wheels in my paper. A few days ago, Dr. Merriam, of Salem, sent me a few, and among them was a small wheel cut out of a piece of rubber, such as is used for erasing ink marks, and I found them excellent for polishing.

Dr. Barker—One use I make of Dr. Stevens' cutters is for cutting out metallic disks. I use more of these than of any other kind, because I can make them of any thickness I wish and have them either flexible or rigid. No disk, for a flexible disk, equals in value the celluloid disk. Those in the market have the corundum incorporated in them, and after they have been used for a while the corundum wears out, but by applying with the end of the finger corundum flour when wet, it is taken up, and the celluloid wears to a mere film. In Providence they make cheap jewelry from "low brass," and I am able to get it of any thickness. I

punch out the disk, put it on the mandrel, and use corundum flour in the same way as with the celluloid disk. This metal is flexible, and by rotating the disk rapidly they can be dished as they spin britannia. If you want a flexible disk, celluloid or a very thin metallic disk is the best.

Dr. Stevens—The disk I prefer is made of emery rather than of sandpaper. I use different grades from "000" up. I often take two disks and stick their backs together. To make the disks last longer I take a sheet of the emery paper and shellac it, first over the face, then upon the back. This I do a number of times until it shows a gloss. To cut out the disks, I use under the cutter a piece of rubber and cloth belting from three-eighths to one-half inch thick. Pure rubber is too elastic. This rubber belting will last a long time for the purpose. When the surface is all cut up, peel off one layer and you have another smooth surface to cut upon.

Dr. Maxfield—In making my sandpaper disks I take a sheet of sandpaper and tack it on a board face down, then varnish the back with one coat of shellac, and when dry give it a coat of sandarac varnish. This gives a smooth, glossy surface, better than the shellac will give and with less trouble.

Prof. Mayr—The shellac wheels spoken of in the paper can be easily made by any one. They consist simply of sixteen per cent. shellac and eighty-four per cent. corundum. Pulverize the shellac, mix it with the corundum, then warm the mass and it can be pressed into the desired shape.

Dr. Beacock—I would like to know about the new wheels that have recently been brought out. Dr. Merriam showed them to me. What are they made of ?

Prof. Mayr—I have analyzed the material. They consist simply of eighty-eight per cent. of corundum and equal parts of hard glass and silicate of soda.

Dr. Shepard—My experience has not been very favorable with them; I think they are too hard to cut well.

Dr. Niles—I agree with Dr. Maxfield that it is a good thing for the younger members of the profession to know how to make these things. To-day I am using some of the cements that I made when I was a student, and I have not been able to find any cement in the market that works any better.

Dr. Barrett—To cut sandpaper strips I use a steel disk made by

Dr. Klotz, of St. Catharines, Ont. It is ground to a sharp edge on one side, with an axle that is fastened into a split handle. This does not have to be sharpened, as it sharpens itself every time a strip is cut.

A paper upon "Copper Amalgams" was read by Dr. Geo. H. Weagant, of Cornwall, Ont. (See page 625.)

DISCUSSION.

Dr. Shepard—The copper amalgam that is used extensively in England is called Sullivan's cement, and I have had some for many years, but have used it but a few times. The tooth in which it is used turns black. The salts of copper seem to be absorbed through the tooth. All the copper amalgams that I have seen seem to affect the teeth in this way. I would like to ask Dr. Weagant if he has used it extensively, and if he has not seen any discoloration of the teeth to what would he attribute the cause?

Dr. Weagant—I have used it a great deal, and a few friends to whom I gave some have used it, and they report the same success with it that I have had. I think the inferior quality of the amalgam is to blame for the discoloration that Dr. Shepard speaks of. Dr. Bogue sent me a sample, I think made by Rogers, of London. Compared with mine, it was very dirty. I think zinc was used to precipitate the copper.

Dr. Shepard—Is the mode of making it original with you?

Dr. Weagant—It is, as far as I know. I do not know of any one else who makes it in this way.

Dr. Black—Made in this way, it is not liable to have iron in it as an impurity?

Dr. Weagant—It is, but it can all be removed by washing. Good results cannot be obtained unless it is clean. I think that the discoloration of the tooth is all due to this fact.

Dr. Black—This may be so, as a broach broken off in the root will discolor it. How long will this remain plastic?

Dr. Weagant—It may be kept plastic for twenty-four hours; it depends on the amount of mercury. When using it squeeze out all the mercury you can. With other amalgams there are serious objections to squeezing out the mercury. With this amalgam nothing is wasted, as the scraps can all be used by simply heating and working over. It seems to improve the more times it is worked over.

Dr. Maxfield—How expensive is this?

Dr. Weagant—I cannot say. The materials do not cost much, but it is quite a task and takes considerable time to prepare it, as it must be made thoroughly clean. I could not afford, personally, to make it for five dollars an ounce.

Dr. Beacock—What temperature is required to soften this amalgam ?

Dr. Weagant—About 600 degrees. As soon as the mercury oozes out on the surface, then crush in the mortar.

AMERICAN DENTAL SOCIETY OF EUROPE.

FIFTEENTH ANNUAL MEETING AT COBLENTZ, GERMANY, SEPTEMBER, 1887.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY DR. E. A. GALBREATH, HANNOVER.

The fifteenth annual meeting of the American Dental Society of Europe was held in Coblentz, at the Hotel zum Riesen, commencing on the 1st day of September, 1887. The meeting was called to order by the President, Dr. George, at 11.30 o'clock.

The Secretary's report of the last meeting, held in Frankfort, was read and adopted.

The Committee on Membership proposed the following names to be voted upon at the next meeting :

Dr. Charles Henry Abbot, Berlin; Dr. Fred Merril, Milan; Dr. J. F. Patterson, Montreux.

The following gentlemen were then elected members of the Society:

Dr. Chas. H. Adams, Frankfort on the Main; Dr. Elof Förberg, Stockholm; Dr. George Hofman, Wiesbaden; Dr. H. C. Merril, Cologne.

Dr. Elliot announcing that on account of the two years' absence law he was no longer a member of the Society, it was resolved that his excuses be accepted, and his name again placed upon the roll of membership.

A committee consisting of Drs. Bryan, of Basel, and Jenkins, of Dresden, was appointed to arrange for a dinner at the hotel.

Adjourned to meet at 2 P. M.

AFTERNOON SESSION.

Dr. Cunningham's paper on "Dental Education" was read by Dr. Elliot, Dr. Cunningham being absent, in attendance at the International Congress.

DISCUSSION.

Dr. Jenkins called on Dr. Miller to give the relations of the Zahnarzt and the Zahnteckniker.

Dr. Miller—The authorized physician in Germany is required to have graduated from the Gymnasium. The authorized dentist must have become a Primaner, or have studied two years less. To be a Zahnteckniker, no preparation whatever is required by law. The dental student (Zahnarzt) must attend two Semesters in the dental department of a University, and then present himself for examination. This examination comprises:

FIRST—The diagnosing of practical cases in the mouth, lasting thirty minutes, upon which cases he writes out his treatment of the same. Time, three to six hours.

SECOND—The written examination, lasting six, ten or twelve hours.

THIRD—The practical examination, such as making fillings, sets of teeth on rubber and gold, and extractions.

If the restrictions imposed upon the Zahnarzt were greater, he could not compete with the Zahnteckniker, who on account of the German law which allows freedom of occupation (Gewerbefreiheit), practices with no restriction whatever. Our chief object in the University of Berlin has been to elevate the standard of practical work. Most of the dental students in Germany are, theoretically, well informed, but practically are so deficient that they have come to us from Bonn, Heidelberg, etc., to learn to put on a rubber dam.

Dr. Jenkins—I would like to ask Dr. Miller if he has found the students from the Real Schule superior to those from the Gymnasium. I have been informed that Dr. Esmarch formerly preferred pupils from the Gymnasium, but later has given a decided prefer-

ence to those from the Real Schule. Also, what lectures do the dental and medical students have in common ?

Dr. Miller—The dental and medical students attend together lectures on anatomy, physiology and materia medica, but the former are not examined so strictly as the latter—in anatomy, for instance, on the head and neck only. He makes, on the average, a better examination than the medical student. I have not been able to discover any difference between those students who come from the Lyceum and those who come from the Real Schule, but I have found that students from Finland surpass all others in practical work.

Dr. Patton—Perhaps some one ought to explain that the course of study in the Lyceum is intended for professional men; that in the Real Schule for business.

Dr. George—One can but feel mortified when he compares the status of American schools with those of England. Surely our schools can be improved, or at least raised to the highest present standard—that of Harvard, for instance. We cannot, perhaps, do much as a body, but singly, by correspondence, we may do much to encourage men who have already devoted themselves to that object.

Dr. Field—Sir John Tomes sums it all up when he says, "It is one thing to know the scientific principles of an art, but it is quite another to carry them into effect. This requires an amount of skill of hand which can be attained only by long and careful practice under competent teachers." The curricula are thorough enough, and they all require enough, but the principal thing in dentistry is the practical part. With all the thoroughness of English courses of study, there is not so much accomplished as in American schools, because in the latter there is vastly more attention paid to the clinical work. I have lately read an article on Dental Education, pointing out that the English are retrograding in mechanical art, that the Americans are advancing in it, and the Germans are learning it through the Kindergarten. I would like to ask Dr. Miller if there is any possible basis for this statement.

Dr. Miller—Well, I don't know. Little children have building blocks, figures to draw, outlines to make, patterns to braid with fancy papers, and perhaps it has an effect on later progress in dentistry. I do not mean to depreciate American schools. I always

advise German students to go to an American school after having made their degree in Berlin. Still, I would under no circumstances write D. D. S. after my name in Germany, on account of the miscellaneous work done in diplomas in America.

Dr. Patton—I am glad to hear Dr. Miller speak so strongly on this subject, and think this Society should take some means to stir up the dentists in America. There can be no doubt that there are innumerable instances in which persons in Germany, using the title of American dentist, have been gone from home but three months. Dr. Petermann, of Frankfort, has written his opinions very frankly in the German magazines, and has accumulated indubitable evidence of false diplomas from Philadelphia and Baltimore.

Dr. George—This Society passed at one time a resolution bearing upon this subject. Can any one tell us exactly what it was?

Dr. Miller—Graduates of the Pennsylvania College, to become members of this Society, must read an original article on some subject connected with dentistry, and pass a special examination in the English language. We have a record of the foreign diplomas improperly granted, and the Pennsylvania school heads the list, with the Philadelphia a good second. Baltimore stands next, and New York is fourth. No other college has issued more than three. The Pennsylvania and Philadelphia colleges have done more harm here by awarding diplomas to unworthy persons than sham institutions have by selling them.

Dr. Field—There have been just such cases in England, and lately, too.

Dr. Elliot—I had great hopes, when I became a lecturer on Operative Dentistry, of being able to accomplish good work in this direction. But after five years I resigned, disheartened. Attendance on the lectures was not obligatory, and I had, on the average, about fifteen. You all know that we have now the registration law in England, but, after all, it seems liable to fail. At any rate, it is not enforced in busy London, as the example of a flourishing American firm of bridge and crown workers will show. The firm advertises extensively, and they really are not eligible to practice, not being registered, not having diplomas from an English college, nor from Michigan or Harvard, or if from these two colleges, not having had ten years' practice after graduation, as is required by law. This is a point which may not be known to all of you.

Dr. Field—I had exactly the same experience in the same position that Dr. Elliot held, and I withdrew after three months. I had an attendance at my lectures of only six.

Dr. Elliot—I suppose every one knows of the Odontological Society of Great Britain. I proposed to them to get up some clinics. Their reply was that they were a scientific body, and wanted nothing to do with practice. I arranged two clinics at my own house, and invited the Society to see, at the same time, Dr. Rosenthal's apparatus for the treatment of alveolar abscess. There are one hundred members of the Society. Five came.

The President announced the Section of Mechanical Dentistry, and called on the chairman, Dr. Patton.

Dr. Patton—I have prepared no paper, as there have been no really great strides made in mechanical dentistry since one year ago.

Dr. Kingsley presented the Knapp blow-pipe, but the pressure of gas was insufficient to make it a perfect success.

Dr. Bryan presented a variety of bridge-work models.

Dr. Jenkins—I wish to present a new material for taking impressions, particularly where there are heavy undercuts. It is an impure variety of gutta-percha. My attention was called to it by Dr. F. H. Young, who has been experimenting with all sorts of gutta-perchas for two years, and finds this the best for the purpose. It must first be softened in hot water, put smoothly into the impression cup and placed in the mouth at a temperature such that the hand will barely perceive that it is warm. It is left in the mouth from four to five minutes, taken out quickly, held in the hand until the disarranged parts resume their places, which they will invariably do, and then suspended in cold water in such a way that no part of the still soft impression shall touch the vessel containing the water. In separating, it must not be made too hot, but allowed to be in the water ten or twelve minutes, when it may be separated easily, and if done properly another model can be made from the same impression.

Dr. Förberg—I think Dr. Suersen uses the same gutta-percha for his operations.

Dr. Patton—Zahnarzt Kellner, of Cologne, takes beautiful im-

pressions by laying a mixture of wax and gutta-percha over a wax impression, and then repeating the process.

Dr. George—Dr. Herbst has sent a few models illustrating his method of making small partial plates without taking an impression. He presses a piece of rubber into the mouth as you see illustrated by these models, takes it out, trims it, sets up the teeth on it, tries it in and vulcanizes.

A few months ago, having considerable annoyance from the rubber we had been using for plates, I instituted a series of experiments for the purpose of determining what was the best varieties for our purposes. I regret that at present I can give no full report. Many little difficulties have turned up unexpectedly, each requiring considerable time and patience to overcome, so that my progress has been nothing like so rapid as I anticipated. I have been testing for elasticity and fracture strength. I have found thirty-seven samples of rubber in the market. I have taken twenty pieces of each variety, of the dimensions of 5 by 9 by 1 millimeters, and tested each of these pieces with a very simple little machine made for the purpose. I hope next year to make a complete report.

Dr. Miller—I should think that a tough rubber would be better for plates, and an elastic one for clasps.

Dr. Field—Were these specimens made under pressure?

Dr. George—No. They were cut, placed between plates of glass, plaster of Paris was flowed around them and they were then vulcanized.

(TO BE CONTINUED.)

NEW YORK ODONTOLOGICAL SOCIETY.

REPORTED FOR THE INDEPENDENT PRACTITIONER.

The November meeting of this Society was held on the 8th ult., at the New York Academy of Medicine, Dr. J. Morgan Howe presiding.

Dr. C. E. Francis presented a small syringe for injecting medicine into root-canals, devised by Dr. J. A. Dunn, of Chicago. He said he had used every sort of syringe ever heard of intended for this purpose, but all have proved objectionable. With the ordinary glass-

tube syringe the piston is apt to stick when pressing the rod, which is likely to bend the tube or cause it to slip, and perhaps get some of the medicine in the mouth or on the lip. Dr. Dunn's syringe is free from such objection, and requires no effort to use. He has never before experienced such satisfaction in treating root-canals as now.

Dr. S. G. Perry described a case of replanting. He also exhibited a matrix made of thin steel ribbon about an inch in length, with a perforation at each end to insert a silk ligature for securing it to the tooth. He claims that the band, when carried between the teeth and fastened, will so bend as to take the original shape of the tooth and enable the operator to pack the filling securely against the cervical margin of the cavity. Dr. Perry had a cast with natural teeth imbedded in the plaster, and a matrix adjusted to show its nice adaptation.

Dr. W. G. A. Bonwill, of Philadelphia, read a lengthy and interesting paper on Amalgam. He gave a history of his experience with this material as a tooth-stopping, with some ideas regarding its preparation, and his method of manipulating it. He spoke of his efforts to combat the prejudices of parties who possess a mortal dread of having any sort of mercurial preparation in their mouths, whether amalgam fillings or rubber plates. Among his patients were several physicians of the Hahnemann school, with each of whom he had held a sort of argumentative combat, and every time silenced their small and poorly arranged batteries. The doctor has much faith in good amalgam fillings, which should be introduced with great thoroughness. An operator who can put in excellent gold fillings is just the one who can use amalgam intelligently. He also favors the use of gutta-percha stoppings, which possess good saving properties. He deprecates the use of gold for the teeth of young children, and uses amalgam or gutta-percha in such cases. He considers tooth-contact a menace of decay, and likes separations between the teeth. He does not believe in using separators to make space for filling proximal cavities. At the close of his reading the doctor demonstrated his manner of mixing and packing his alloy, using much pressure and working the free mercury to the surface by packing against it bits of folded bibulous paper.

Dr. Francis was much interested in the paper of Dr. Bonwill, and particularly in his antagonism with prejudice. He also had

met with somewhat similar experiences, and related an instance where a physician once charged his lack of success in treating a patient to mercurial fillings in her teeth, when not a particle of amalgam was present. He did not object to amalgam for fear of any mercurial effect it could have upon the system. This idea of mercurial poisoning he considered nonsensical. His only objection to amalgam was that he could not always rely on it. He had seen cases where it had done good service for many years, yet in many instances it gave out in a comparatively brief time. It was apt to recede from the cavity margins, or the cavity margins to waste around the fillings.

Dr. A. H. Brockway thought the same objection might be made to gold, for that is not always reliable. Gold fillings sometimes fail. He thought the success in use of amalgam often resulted from care in using it and the proper preparation of cavities.

Dr. C. F. Ives also believed that success in use of amalgam depended much on its proper manipulation. He would not use any excess of mercury, but have as little as possible in the filling.

Dr. Jackson had used spunk instead of paper for pressing against amalgam fillings.

Dr. J. W. Clowes assured gentlemen that there need be no fear in using plenty of mercury to mass the filling.

Dr. W. H. Dwinelle said that in some instances it seemed advisable to employ amalgam, and he occasionally used it; not from lack of ability to manipulate gold, even in difficult cases, but sometimes it served a better purpose. Some time ago he restored with amalgam a broken molar which already contained a large contour gold filling, and recently he had seen the tooth and found it in excellent condition. He also had met with people stocked with prejudices and groundless fears concerning mercurial fillings. He referred to the action of the old New York associations of dentists, soon after amalgam came into use, in compelling its members to pledge themselves not to use this material under fear of expulsion, and denouncing as empirics all who employed it. That action would not bind the intelligent dentists of the day, because it was believed to be largely the result of ignorance and prejudice. It resulted in a rupture in the Society, and engendered much ill-feeling.

On motion of Dr. Dwinelle, a vote of thanks was tendered by the Society to Dr. Bonwill for his interesting paper.

Editorial.

VALE! 1887.

With this number Volume VIII is brought to a close. We can, we think, look with pride upon what has been accomplished, and anticipate yet better things for the future. "Experientia does it," and the publishers certainly are better prepared to furnish a valuable journal now than they have been at any time in the past. All we ask for is the support of those for whom we labor. The many letters of high commendation received only act as an incentive to yet greater exertions. Not one such but has been gratefully read, and if we have not made individual acknowledgment it was because of lack of opportunity. We are fain to believe that there is a personal attachment between the publishers of this Journal and its readers, and it is our earnest desire that this feeling shall become yet warmer. The editor is well aware of his shortcomings, and that sometimes his course may not be endorsed by all his readers, but he trusts they have faith in the honesty of his intentions, that they believe he is conscientiously laboring for what he thinks is the greatest good of our beloved profession, and that they will excuse the errors which are of the head and not of the heart.

It has been our pride that very seldom is a subscriber lost to the Independent Practitioner, and we trust that every one will renew for the coming year, and thus help us to be of use to them in return. Bills will be sent out with the January number, and we bespeak for them prompt attention. We do not desire to press old subscribers to their inconvenience, but shall hope that our dues will not long be withheld. Receipts for money sent us will be enclosed in the number for the month succeeding the reception.

We desire to call attention to the very liberal offer made in the prospectus. Our main object in sending out Prof. Stowell's book at the almost nominal price for which it is furnished, is that it may act as an educator. No one can look at its beautiful plates without obtaining a distinct general knowledge of the internal structure of the human tooth. We lose money on every copy of it furnished, and our only hope of complete reimbursement lies in the expectation of an increased subscription list. Under these circumstances, all will comprehend that the rule that the book can only be furnished in connection with a subscription must be inflexible, and that the

money in such cases must accompany the order. We reach the extreme limit of ability in making the offer, and hope that this fact will be appreciated, and that we shall not be asked to do that which is impossible.

And now, permit us in the most earnest and heartfelt manner to extend to every reader all the compliments of the Merry Christmas season, and to express the hope that the coming year will mark a great advancement in every good and desirable thing. At the close of the year 1888, may we all be better, richer, happier than now. Written as this is upon the glad Thanksgiving Day, we can but exclaim with Tiny Tim, "God bless us, every one."

EDUCATIONAL MATTERS.

In the report of the meeting of the American Dental Society of Europe will be found some severe strictures upon the course of American colleges in granting degrees to unqualified foreigners. The society is composed of representative American dentists, men who are on the ground and should know the status of the American graduates abroad better than even the authorities of the colleges which gave them their diplomas. The report comes from an entirely reliable source, and we have not felt at liberty to suppress it, even were we so disposed. It is presented, therefore, upon their responsibility, and we do not wish to be understood as either endorsing or dissenting from its statements. Every dentist, and especially every graduate, desires to know just what is the sentiment of American dentists abroad upon the subject of education, and to give this information is sufficient reason for presenting the report.

There are very few who will question the fact of the improper conferring of degrees upon foreign candidates in the past. Too much of this has, without doubt, been done, and as a consequence the American degree is discredited in foreign countries, some of them discriminating directly against it. But we are not prepared to charge this upon any particular college or colleges. There has been too lax a sentiment upon the subject on the part of the dental profession in America. The schools have not been held to a sufficiently strict accountability, while reputable students have been content to graduate in the same class with incompetent and disreputa-

ble men. We have not, as a body, sufficiently discriminated between the schools which have kept up the standard of qualification and those which have accepted students refused by other institutions.

We believe that within a recent period there has been a marked improvement in the class of student graduates at all our schools, and that the next few years will witness still greater progress. The best of our institutions are, without doubt, ready to go quite as far in the extending of the curriculum as the sentiment of the dental profession will warrant. What is needed is a greater interest in our schools upon the part of practitioners, a better appreciation of what a dental education should be and a higher standard of qualification in the ranks. The schools generally are what the dentists as a body make them, and they fairly reflect the status of the profession. They cannot well rise very much above it, and when dentists demand better schools, we shall have them. We are constantly advancing, and to-day a Delavan disgrace would be impossible. A few years hence some of the schools of to-day will have been either improved or abolished. The calling of public attention to educational affairs will constantly tend to the elevation of public sentiment, and with this end in view we have not hesitated to present the opinions of men who feel deeply upon the subject.

EDITORIALLY.

Owing to the great amount of other matter which demands a place, the usual leading editorial for this number is omitted. We are well aware that the average reader likes to see something in each number from the editor, even if it be not very brilliant. His opinions may be crude, his judgment feeble and his reasons vapid, but the editorial sauce seasons them, and they are accepted in place of better reading. As plain W. C. B., what we may say is of little moment; but as the editor of the INDEPENDENT PRACTITIONER, it may be read and tolerated, and perhaps we have at times trespassed too freely upon this indulgence. But like pulpit orators, we have our hearers where they cannot talk back, and the privilege is too dear to be lightly relinquished. At any rate, we are in no mood to promise amendment for the future.

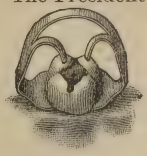
Current News and Opinion.

PAINLESS CLAMPS.

Among the proceedings of the New York Odontological Society of June 14, 1887, as published in the *Dental Cosmos* in October, I notice the following:

Dr. S. G. Perry—"The President hands me something here that to my mind is very important—a clamp with a couple of hooks or ears so made as to catch and rest upon the grinding ends of the teeth to keep it off the gum. There need not be any talk about it, because its utility is self-evident. It is Dr. Bogue's device." See Figs. 1 and 2.

1.



2.

President E. A. Bogue—"With regard to the clamp that is passing around, I will say that during my study over the principles underlying the separator, and after careful observations in a great many cases, I discovered that the teeth from the tops of the crowns to the necks were of a fairly uniform length; not the teeth of one person alone, but the bicuspids and molars of nearly all persons. Hence my own separator operates without injury or pain to the gums. Taking advantage of that fact, this little clamp was constructed upon the same principle. It has been used in my office for nearly two years, but so far as I know has not gone outside of the office. I take pleasure in presenting it before you."

As I have used clamps of this form for more than ten years (eight years longer than Dr. Bogue says he has), I wish to endorse Dr. Perry's remarks concerning their merits. These clamps are so valuable to me that I would not on any account dispense with them in my practice.

Probably there is no instrument that patients dread more than the ordinary clamp, which bites down and impinges upon the margin of the gums. The shape of many teeth renders it necessary for the jaws of the clamp to take a deep hold, and in some cases to extend even beneath the gum, in order that it may not slip off. Indeed, some teeth are so conical that no clamp will remain secure long enough to allow the completion of an operation. But there are other teeth with crowns so large and necks so small that the jaws of the ordinary clamp will imperceptibly creep down from the crown to the neck, and will encroach upon the gum sufficiently, in many cases, to cause excruciating pain, and even injury to the gum.

It is only necessary to use a clamp properly constructed, which, while perfectly efficient, cannot cause pain or injury by creeping. For the comfort of patients, and I may say of myself also, I have, as before said, used with great satisfaction a set of such clamps, and thinking that they might be useful to others, I published an account of them in the *Dental Cosmos*, April, 1877, pp. 288, 289. As the description there given is brief and clear, I will quote direct from the article:

"The avoidance of pain is secured by having an annealed ear, or two ears, projecting from the jaws of the clamp, so as to rest upon the grinding surface of the crown, and allow the jaws to remain at a desired fixed point on the side of the tooth without liability to creep down upon the margin of the gum.

"These painless clamps are made of different sizes and shapes to suit different teeth, some having one ear and others two; some suited to long crowns and others to short ones. From the set a clamp may be selected for each case, so shaped that the ear or ears will not be in the way. The object in having the ears annealed is, that they may be bent to suit different lengths of crowns in rare emergencies; but if the operator has several sizes, there is little or no necessity for doing this. Although I use a set of a dozen of these clamps, more than six are not often necessary. If one is to be used on trial, the one-ear molar clamp is the most useful.

FARRAR'S CLAMPS.

3.

Bicuspid clamp with bifurcated ears on each clamp jaw.

4.

Molar clamp with single ear on each jaw.

5.

Molar clamp No. 4, applied to tooth.

6.

Molar clamp with single ear applied to tooth.

"The set consists of a right and a left one-ear (*i. e.*, on one side only) molar clamp; a right and a left bicuspid clamp, with a bifurcated ear on one jaw; and two molar clamps, having an ear on each jaw, one of the clamps suited to long crowns, and the other to short crowns."

Figs. 3, 4, 5, 6 illustrate a sample of each variety of this set of clamps, which are of my own devising. The bicuspid clamp, with bifurcated ears on one clamp jaw only, does not appear in the illustration.

J. N. Farrar, M. D., D. D. S.

1271 Broadway, New York City.

DENTAL SQUIBBS.

BY "MEANDER."

* * *

Hear what Professor Gross says: "Dentistry is the most important specialty in medicine. Many people come into the world and go out of it who never require the other specialties, but *no* child is born who does not, sooner or later, require the services of a dentist."

Now, suppose that child has the misfortune to come under the care of a mediocre dentist, whose greatest success lies in destroying live pulps and extracting teeth that can be easily saved to do good service for years. A good natural tooth is worth a whole mouthful of artificial ones, and if any man saves a natural tooth from destruction, he, indeed, does a great service and "will hide a multitude of sins."

There are cases in which it is excusable to destroy a pulp. But happily, they are few. It may be admissible in the almost total destruction of one or more of the crowns of the cuspids, or the lateral and central incisors. He who, in such cases, has removed the pulp from the root-canal by driving up a fine wooden stick, and then removed the tissue and immediately stopped the apical foramen with any suitable material, has found that abscess does *not* occur. Why?

He who has read Dr. Black's erudite and painstaking paper in this Journal, page 462, Vol. VIII, has discovered a good reason. It may be the true one. Hear what he says. Read it over several times! "If we have found the conditions favorable," note 'favorable,' "abscess following the removal of the tooth-pulp should be impossible. We may pass our broach through the apical foramen and wound and lacerate the tissues, and possibly provoke an inflammatory movement, but"—now notice what he says—"if the root-canal and the instrument be aseptic, abscess cannot occur! This I have tried, experimentally, in a sufficient number of instances to be convinced that it is practically true, as well as theoretically true. In several cases I have aroused a considerable degree of inflammation, but in no case did abscess occur." Why? "These experiments were made by broaches cleaned," that is, made aseptic "by heat."

Dr. Black's position is, that there must be no microbes either in the pulp-canal or on the broach. Both must be aseptic; that is, free from microbes.

How would it work if each operator should use extraordinary care to have his forceps, excavators, engine-burs, corundum disks, and all manner and forms of dental implements most thoroughly cleaned after using them upon a patient, and before they are applied to another patient? How many do this thing thoroughly? How many leave it to an indifferent assistant?

Does not this paper of Dr. Black set some of us thinking? And thinking, can we not benefit our patients by it? Can we not manage to stumble a little less? Suppose we had no dental literature, how many of us would have known this?

THE TOOTH CROWN AND BRIDGE PATENTS.

NOVEMBER 1ST, 1887.

A. L. Northrop, D. D. S.

DEAR SIR:—In answer to your request on behalf of the first District Dental Society of New York, asking for our opinion as to the legal position of the dental profession, with regard to the crown and bridge patents of the "International Tooth Crown Company," in view of the recent decision of Judges Wallace and Shipman, in the Richmond and Gaylord suits, and advice as to relief from further claims made under the Low bridge patent, we have to say:

These suits involved the validity of the two patents to Cassius M. Richmond, Nos. 277,941 and 277,943, for "Tooth Crowns," etc., the patent to Alvan S. Richmond, No. 277,953, for "bridge," all dated May 22d, 1883, and the patent to James E. Low, for "method of supporting artificial teeth by bands cemented to permanent teeth," No. 238,940, dated March 15th, 1881.

The first two patents covered what is known as the "Richmond" and the "Sheffield" tooth crowns in all its varieties. They were held invalid, and therefore you are at liberty to make such tooth crowns without being in any way liable to the International Tooth Crown Co.

The complainants have appealed this case to the U. S. Supreme Court, but we do not advise you that any different decision will probably result. The practical result is that the tooth crown is free.

The patent for the Richmond bridge was also held invalid, but the Low patent was declared to be good. This Low patent covers a bridge attached to continuous bands cemented to adjoining permanent teeth, "whereby said artificial teeth are supported by said permanent teeth without dependence on the gum beneath."

The Richmond patent is, as you will remember, for a bridge supported by caps, and the Court held that it was not invention for Richmond to support a bridge on caps, but it was invention for Low to support a bridge on bands, taking all the surrounding circumstances into consideration, and that as a cap was nothing but a band with a roof on it, the Richmond bridge infringed the Low patent.

The practical effect of this decision, if the complainant chooses to follow it up diligently, and unless some new evidence is found, will be to shut the profession out from inserting permanent bridges supported at one or more points by cemented caps or bands without dependence on the gum.

As the matter now stands, any dentist inserting a Richmond bridge (according to the decision), infringes the Low patent; and an injunction would doubtless now be granted by any Federal Judge on application, on the strength of that adjudication alone.

An appeal can be taken by the defendants to the Supreme Court, a year or so hence, after an accounting by them, and determining the amount of profits or damages the complainant is entitled to recover.

The way of relief is for all the dentists of the United States, who supported artificial teeth on a band or bar, surrounding and extending between permanent teeth prior to September, 1878, to send to us at No. 833 Broadway, New York City, or to No. 9 Law Chambers, New Haven, Connecticut, a truthful description of what he did, and for whom, and where and when.

If such proofs can be made strong and clear enough to satisfy the Court that what Low described was well known, and had been long practiced by dentists in the United States before Low claims to have done it, the present case might be opened for re-hearing on the newly discovered evidence—or the Courts might refuse to grant injunctions, upon the ground that the present decision would have been the other way if this evidence had been before it — at any rate, the question of the validity of the Low patent would be re-tried, if its owner ever had the temerity to sue a dentist whose mouth had not been closed by a license, in which he covenanted never to deny its validity.

Whether, in a suit against such a licensee, the Court would enjoin upon the *covenants*, under a patent declared void, either before or after the taking of the license, we cannot say.

Your obediant servants,

SOLOMON J. GORDON,
833 Broadway, New York City.

JOHN K. BEECH,
9 Law Chambers, New Haven, Conn.

THE CONGRESS FROM AN ENGLISH POINT OF VIEW.

All who were guests at Washington feel very cordially their indebtedness to their American fellow-professionals, and will for a very long while remember their hospitality and courteous bearing towards the "strangers." Among the sections our own specialty was very conspicuous; with 500 entries it was able to present better audiences and wider discussion than most of the other sections. If the communications read were not all very first rate, it must be remembered that the committee appointed to winnow the chaff from the wheat appeared to have taken too good-natured a view, and to have left their "gift of criticism" behind them.

There can be no doubt, and we are pleased to find our professional brethren of America were the first to notice the matter, that much really valuable material was crowded out by the intrusion of silly papers and vapid discussions.

As far as English dentistry is concerned, it is not going too far to say that we were not represented. No really important paper was offered by an English dentist, dealing in an exhaustive way with professional matters, and the leaders of the English profession held back in a most regrettable manner from the Congress.

A feature of our section which interested all, and imparted a practical relief after some of the rather slow "talkie talkie," was the establishment of clinics. No class of professional entertainment can compare with that afforded by seeing another actually engaged upon some new method or unfamiliar development of technique. One often reads, with wide-opened eyes and mouth agape, of prodigious developments of American dental art, and all of us were more anxious to witness with our own eyes the actual practice than to hear the theory of "how to do it." After all, an ounce of practice, when it is dental, is worth a hundred-weight of precept. Clinics are what we all have need of, and it would spare us a good deal of valuable time if every one who brought a new procedure before a society should be bound to demonstrate upon a patient the practicability of his theory.

One other lesson taught by the Congress needs comment. Although in London we possessed an Oral Section at the Congress of 1881, the dentists were left out in the cold at Copenhagen in 1884, so that the undoubted success of a Dental Section in 1887 gives earnest of its continuation in subsequent meetings of the International Medical Congress.

After much dispute and many rather silly papers anent the subject, "Is Dentistry a Branch of Medicine?" the American mind has settled down into an affirmative state, and there we trust it will rest.

In England, with perhaps a few exceptions, dentists regard themselves as part of the brotherhood of the healing art, and are so received by the doctors. As time goes on, most dentists will bear registrable medical diplomas over and above the L. D S., and then the matter will be settled. For the present, a few storms stirred up in teacups are amusing, and break the monotony of dental life.

The Congress of 1887 is over; but friendships made, debts of hospitality incurred, are like chains of roses, unbreakable by their very nature, and will, we

trust, prove sempiternal. When America comes to England, let us not be wanting in efforts to show her how heartily we appreciate all her kindnesses, her hospitality and courtesy.—*Brit. Jour. Dental Science.*

ADMINISTERING ANÆSTHETICS.

There are many who will bear witness that we have constantly urged that the chief danger in the administration of chloroform and ether is the liability to force upon the patient an atmosphere too highly charged with the vapor A more unscientific and dangerous way than that which is usually followed could scarcely be devised. What judicious physician administers powerful drugs by guess, and in almost total ignorance of the strength of the solution? Imagine any one giving opium in this way. And yet, chloroform, a drug of greater power, is constantly administered in a hap-hazard fashion.

We are impelled to these remarks by an examination of the Hayes' apparatus, advertised in this number. Of their "Hypnotic" we have no knowledge, but we do believe that this is the first apparatus yet presented to the public which will enable the administrator to have under intelligent control the vaporization of the agent—to know just the percentage in the atmosphere breathed, and to be able to increase or diminish it at will.

NOTICE.

I am in receipt of a circular announcing the opening of "The Robinson Tooth Crown College," with my name appended as a reference "by permission." I have only to say that I know nothing about any such "college," have never been consulted concerning it, and have never authorized the use of my name as a reference. G. L. Curtiss, Syracuse, N. Y.

No one at No. 208 Franklin Street, Buffalo, has authorized the use of his name as a reference, or has any knowledge of such an institution. The circular would seem to be a deliberate piece of ——— assurance. W. C. Barrett.

MISNOMERS IN CHEMISTRY.

Oil of vitriol is no oil, neither are oils of turpentine and kerosene. Copperas is an iron compound and contains no copper. Salts of lemon is the extremely poisonous oxalic acid. Carbolic acid is not an acid, but an alcohol. Cobalt contains none of that metal, but arsenic. Soda water has no trace of soda, nor has sulphuric acid of sulphur. Sugar of lead has no sugar, cream of tartar has nothing of cream, nor milk of lime any milk. Oxygen means the acid maker; but hydrogen is the essential element of acids, and many contain no oxygen. German silver has no silver, and black lead no lead. Mosaic gold is only a sulphide of tin.

ALLOY FOR GOLD SOLDERS.

Take equal parts by weight of copper, silver and zinc; melt the copper and silver in a crucible, and add the zinc in small pieces; when the blue flame of gas is thrown off, pour into an ingot and call it *alloy for gold solder*. Take of this alloy one part, and of the gold plate you are using three parts, and you will have a solder that will melt easily, flow smoothly, and will not change color in the mouth; if you want it to melt harder, put in less alloy.—*Dr. J. A. Robinson.*

WISCONSIN STATE DENTAL SOCIETY.

The following resolutions were passed at the last annual meeting of the Wisconsin State Dental Society, and are sent to you for publication :

Whereas, Members of this society are threatened with suits for damages and injunctions, if certain letters patent for alleged improvments in dentistry are not recognized, the validity of which has been gravely questioned, and the right to use is wholly refused, or terms and conditions imposed, which would be a heavy tax upon the profession and the community for many years; and,

Whereas, It would be unjust for one or two members to bear the labor and heavy expense attendant upon determining how far the pretensions of such patentees ought to be respected; therefore,

Resolved, That each member of this society be requested to contributed five dollars towards a protective litigation fund, to be expended as a special committee may deem advisable in carrying out the spirit of these resolutions; and,

Resolved, That said fund shall be termed the "Litigation Fund," and to remain in the hands of the committee until expended, or by lack of prosecution, returnable to the different subscribers of the fund *pro rata*.

CONNECTICUT VALLEY DENTAL SOCIETY.

At the annual meeting, held at Springfield, Mass., October 27th and 28th, the following officers were elected:

President—R. R. Andrews, of Cambridge, Mass.

Vice-Presidents—F. W. Williams, Greenfield, Mass.; George W. Lovejoy Montreal, P Q

Secretary—Geo. A. Maxfield, Holyoke, Mass.

Treasurer—W. F. Andrews, Springfield, Mass

MASSACHUSETTS DENTAL SOCIETY.

The twenty-third annual meeting of the Massachusetts Dental Society will be held in Boston, Thursday and Friday, December 8th and 9th, 1887. The Executive Committee is doing all in its power to make this meeting a profitable one, and asks your hearty co-operation. Mark the time off *now*, and be at the meetings from start to finish. Full programmes will be sent later.

Per order Ex. Committee,

GEO. F. EAMES, Secretary.

Editor Independent Practitioner:

How can any man who comprehends English make such a misapplication of the words "former" and "latter" as that contained in the criticism upon Dr. Black's paper on "The Formation of Pus," under the caption, "Dental Squibbs," in the PRACTITIONER for November?

The sentences criticised are as follows :—

"In this way the formation of the matrix filled with fresh ameboid cells, which tend to develop into granulations, is constantly proceeding. And the liquefaction of this exudate, carrying with it the ameboid cells in the form of pus, is also constantly proceeding. If the *former* exceed the *latter*, the healing

of the wound is being accomplished; but if the *latter* exceed the *former*. destruction of tissue and widening of the breach of continuity is the result"

Here are two things, antagonistic to each other, said to be proceeding at the same time, and the words former and latter are used to designate them, respectively. The exudate (or matrix) and the ameboid cells are associated together in each of the two processes referred to; in the first as being built up into the tissue of repair, and in the second as being destroyed together in the formation of pus. It is not possible, grammatically, to apply the word *former* to "the liquefaction of this exudate" and the word *latter* to "the ameboid cells"

Yours truly,

EDMUND NOYES.

DR. GEO. D. HAYS, of the New York Post-Graduate School, writing in the *Quarterly Bulletin*, says: "We have long been accustomed to hear that many of the evils of modern life owe their origin to our choice of *white* flour. That this is not so, an examination of the wheat-berry will show. This has five coats—an epi- meso- and endocarp, an episperm, and a tegmen. The three outer ones have no value whatever as nutriment; within the episperm is a layer of gluten cells, chiefly albuminoids, and finally, in the endosperm, which constitutes the bulk of the grain, we find starch mixed with albuminoid cells. In the old process of milling, the perisperm (the part within the episperm) was, on account of its close attachment to the inner husk, largely carried away, leaving the bolted flour the poorer for its loss. Hence the vegetarian, Sylvester Graham, whose name is applied to bread made from unbolted flour, was correct in his time in saying such bread contained the most nutriment. The present gradual reduction process saves this portion of the wheat. The bran itself is composed of woody fibre, and contains absolutely no nutriment. It may have a mechanical value with those of a constipated tendency, but this is all. The wheat loaf and the white flour contain a much larger percentage of phosphates and gluten than the Graham loaf of unbolted flour.—*Lancet and Clinic.*

PARKE, DAVIS & CO., the well-known manufacturing chemists of Detroit, have ruthlessly exposed what appears to be a bare-faced fraud upon the medical profession. Stenocarpin, or Gleditschine, was ushered in with a great flourish of trumpets as a local anæsthetic of even greater power than cocaine, and was favorably received, until Parke, Davis & Co. published an analysis of the preparation, showing that it was almost impossible to obtain any alkaloid from the tree so highly vaunted, and that the preparation owed its virtues to an admix ture of cocaine itself. For many years the chemical manufactures of E. R. Squibb, of Brooklyn, have been the standard of quality in pharmacy, but lately it would seem, from the opinion of many medical journals, that those of Parke, Davis & Co. are taking that position.

THE USE OF A BONE PEG IN AN OPERATION FOR PSEUD-ARTHROSIS.—At a recent meeting of the Paris *Société de Chirurgie*, a report of which appears in the *Deutsche Medezinal-Zeitung*, M. Richelot related the case of an hysterical girl, sixteen years old, with a congenital atrophy of the face, for which resection

of a portion of the lower jaw was performed. The fragments were united with silver wire, but the patient was restless, and the union which took place was by fibrous tissue. Dr. Rontier subsequently drilled a hole through the fragments, excised the callus, and pegged the two parts of the bone together with a portion of the tibia of a calf, which had been steeped for twenty-four hours in a solution of 1 part of corrosive sublimate in a mixture of 900 parts of distilled water and 100 of alcohol. Bony union followed, with only slight asymmetry, and the patient could eat better than before. No disturbances of the dental nerves were observed —*N. Y. Med. Jour.*

The Union Meeting of the Sixth, Seventh and Eighth District Dental Societies of New York, held in Buffalo, October 25th and 26th ult., was one of the largest and most profitable meetings ever held in Western New York. The papers were of a high order of merit, and the discussions were intelligent and instructive. A banquet was given by the Eighth District Society to its guests, at The Genesee, on the evening of the 26th, and it was emphatically one of those affairs which bring men nearer to each other in more ways than one. A report of the meeting was expected for this number, but it did not materialize. Several of the papers read will be published by the Independent Practitioner, that of Dr. Rishel appearing in this number.

Bridge-work is sweeping into the profession with lightning speed, and the next four years will see many noble successes, and many lamentable failures. It behooves us, as sensible men, to stand as a unit against its unwarranted use.

First seized upon by a class of men of a mercenary spirit, it was inserted in every case where there remained a few old stumps, provided the patient was willing to pay for the experiment. The reputable practitioner is a gainer in this one direction, that they caused the idea to spread by the liberal use of printer's ink, and thus brought to many, who would otherwise never have heard of it, the knowledge that teeth could be inserted without a plate.—*Cin Med. and Dental Journal.*

Twenty years ago a dentist, now dead, who bore an honored name, and whose memory is yet revered wherever he was known, said to us that when we wished any of the precious metals prepared by a man in whose thorough honesty and fidelity the most implicit confidence could be reposed, we should go to Thomas Dennis, of Buffalo. From that time to the present he has prepared our gold plate and solders, and beaten much of the foil we have used, and our experience amply confirms that of our deceased friend. Mr. Dennis still continues the business, as may be learned by consulting his advertisement in this number.

Dr. H. C. Merriam says that a tooth is worth itself, the teeth with which it occludes, and all that they united can do for the organization. Not long since a lady of eighteen years of age had the toothache, and the so-called dentist whom she consulted extracted three lower molars on one side. That person was crippled for life for that one toothache. It makes one burn with indignation to hear such practice called dentistry, and such a man called a dentist.—*National Druggist.*

GOLD WILL ONLY MELT at a comparatively high temperature, as we all know, but what is not generally known, *The Jeweler's Journal* says, is that if ten per cent. of silica be added to the gold, it can be melted over the flame of a common candle.

From the same source the reader may learn that a pretty alloy, said to resemble gold exactly, can be made with sixteen parts of copper, one of zinc, and seven of platinum. The copper and platinum are covered first with borax, and then with powdered charcoal and melted, then the zinc added, and the alloy thus produced is exceedingly malleable, and can be drawn into the finest wire, while it never tarnishes.—*Scientific American.*

This item comes from a high source, but in our opinion it will bear careful tests before being put to practical use.—EDITOR.

FOR THE MAKING of a good amalgam pure mercury is essential It is usually adulterated with lead, and if any one wishes to know what kind of an alloy a proportion of lead will make, he has but to add some of it to the mass.

To remove the lead from mercury, place it in a shallow vessel, cover it with one part of chemically pure nitric acid to three or four parts of water, and allow it to stand two hours, stirring it frequently. Then wash out the acid and bottle for use.

A good amalgam should possess the following properties:

1. Ready amalgamation.
2. Moderately quick setting.
3. Non-shrinkage.
4. Non-expansion.
5. Good edge strength.
6. High color standard.

IN THE REPORT of the Quebec meeting of the Connecticut Valley Dental Society, in this number, will be found some references to Dr. Stevens' Disk Cutters, and in the advertising pages it will be seen that they are now manufactured and placed on sale by Dr. Stevens. For a number of years we have had in use a set of these cutters, and every disk used in our office—and they number many thousands—has been prepared by the office girl with little trouble and at no appreciable expense. There is not an instrument, in either operating case or laboratory, from which has been received better returns, in both economy and satisfaction, than from the Stevens Disk Cutter.

DR. VON WEDEKIND, senior physician at the Chambers Street Hospital, New York, recommends pressure upon the supra-orbital notch with the point of the thumb steadily applied and constantly increased for thirty seconds, the patient being in a recumbent position, as a means to distinguish between malingerers, drunken men, hysterical persons, etc., and those who are suffering from serious injuries. It is impossible for those who are not in a state of coma to withstand this test, and those who are in a state of alcoholic insensibility are invariably brought to consciousness. Try the pressure over your own eye.

HEBRA'S OINTMENT, of equal parts of linseed oil and diachylon ointment, prepared with the aid of heat, is recommended as a certain cure for hyperideosis, or excessive sweating of the feet.

Mrs. Cunningham, who thirty years ago was tried for the murder of Dr. Harvey Burdell, a well-known dentist of New York City, and who was acquitted by the jury, though believed to be guilty by the majority of those acquainted with the circumstances, died recently in New York, while on a visit from California, where she had long been a resident, and where she had married a man of wealth and position, named Williams. The Burdell murder case convulsed the whole country at the time of the trial, and has taken its place in history as one of the great cases of the century. The woman for many years had led a quiet and peaceable life.

Archives of Pediatrics, published by J. B. Lippincott Company, of Philadelphia, with the number for January, 1888, will begin the publication of a series of articles on the Therapeutics of Infancy and Childhood, by A. Jacobi, M. D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons; President of the New York Academy of Medicine, etc. The subject will commend itself to the attention of every physician, and one more competent than Professor Jacobi to write upon the theme could not be found.

Within the last fifteen years the curious discovery has been made, that the earth's surface is being continually shaken by tremors so minute as to remain unsuspected without the intervention of the most delicate instrumen's. In every country where the experiment has been tried these tremors have been detected, and not merely at certain periods, but so incessantly that there is never a second of perfect rest. The earth may fairly be said to tremble like a jelly.

Creosote is a distillation from wood tar, carbolic acid from tar of mineral coal; creosote is an oil, carbolic acid an alcohol; creosote is a non-crystallizable fluid, carbolic acid in its pure state is always crystallized, except when quite warm; creosote is not soluble in water, carbolic acid is; creosote is not caustic, carbolic acid is a powerful caustic; creosote is not a germicide, carbolic acid is. —*Mat. Med. and Pharm.*

The Christmas Number of *Scribner's Magazine* contains double the usual number of illustrations, every one of which has been made from a drawing by some well-known and expert artist. A few of those represented are Will H. Low, William Hole, A. R. S. A., R. Swain Gifford, Howard Pyle, E. H. Blashfield, J. W. Alexander, George Foster Barnes, F. Hopkinson Smith and F. S. Church. The price will remain the same as usual—25 cents.

"The Toothache," says Roger Williams, in his observations upon the language and customs of the New England tribes of Indians, "is the only paine which will force their stout hearts to cry." He afterwards remarks that even the Indian women never cry as he has heard "some of their men in this paine."—*Notes to Whittier's Mogg Megone.*

A student in the Albany Medical College when asked how he would treat a corpulent man, replied that he had found in an extensive experience that such men usually take beer.

ARSENIC WILL NOT cause pain when combined with carbolic acid if there be no pressure upon the exposed pulp. If applied in heroic doses it is a caustic, but in infinitesimal amounts and combined with carbolic acid it is a sedative. It assuages pain immediately, and it subdues inflammation. It is the pressure on the inflamed pulp that causes the pain brought on by a bungling application. I never put anything like gutta-percha over the application, but lay cotton gently over the opening to the pulp, and sometimes tie a thread about it to hold it in place. I use pure carbolic acid to paralyze the pulp while the arsenic devitalizes it. DR. J. A. ROBINSON.

SINCE THE READING, last summer, of the paper on Copper Amalgam, published in this number, Dr. Weagant has found himself so overwhelmed with requests and orders for it that he has been obliged, in self-defense, to place it upon the market, and his advertisement will be found in the advertising pages. We have tested it, and are delighted with its plasticity and beautiful working qualities.

DURING THE REIGN of Henry VIII, there were twelve surgeons in London. In 1795, the number of physicians in London was but ninety-four. The apothecaries, not including surgeons, amounted to 4,000.

In 1512, physicians and surgeons had to be approved by the Bishop of London or the Dean of St. Paul's. Females were everywhere to be met with practicing the healing art.—*Medical Classics.*

THE MOST ancient recipes on record are those mentioned in the Pentateuch for preparation of an odoriferous ointment and confection. Their date is 1491 B C.

The work of Scribonius Largus, who lived about the middle of the first century of the Christian era, is a collection of recipes taken from various authors. It is the oldest pharmacopœia extant, but its style is very inelegant —*Medical Classics.*

THE CHEAPEST and simplest gymnasium in the world—one that will exercise every bone and muscle in the body—is a flat piece of steel notched on one side, fitted firmly into a wooden frame. After being greased with a bacon rind it is rubbed into a stick of wood laid lengthwise of a saw-buck.—*Medical Times.*

"PROF JOHN THOMAS JOHNSON, M. D , PH.D., F. C. S., REGISTRAR KINGSVILLE COLLEGE OF DENTISTRY," is the way in which it appears printed upon the envelopes enclosed for a return letter. The man who will address himself in that way cannot be entirely destitute of assurance.

IT IS A GENERAL IMPRESSION that the editor of a journal must have some acquaintance with grammar, and be able to write intelligible and intelligent English. This has been proved a fallacy by *The Medical Brief*, a new monthly recently established at Lafayette, Ind.

THE AREA of the United States is 2,970,000 square miles, and Burdette says it is no wonder a fellow has such on all-howling time finding his collar-button when it rolls out of sight.

A PHARMACEUTICAL SPECIALTY FOR DENTISTS.

LISTERINE.

FORMULA.—Listerine is the essential antiseptic constituent of Thyme, Eucalyptus, Baptisia, Gaultheria and Mentha Arvensis, in combination. Each fluid drachm also contains two grains of refined and purified Benzo-boracic Acid.

DOSE.—Internally: One teaspoonful three or more times a day (as indicated), either full strength or diluted with water, or in combination with other drugs. As a local application to ulcers, wounds and abscesses, or as a gargle, mouth-wash, inhalant or injection, it can be used ad libitum, diluted as necessary for varied conditions.

Antiseptic, Prophylactic, Deodorant, Non-Toxic, Non-Irritant, Non-Escharotic, Absolutely Safe, Agreeable, Scientific, and Strictly Professional.

LISTERINE is a well-proven antiseptic agent — an antizymotic — especially adapted to internal use and to make and maintain surgical cleanliness — asepsis — in the treatment of all parts of the human body, whether by spray, irrigation, atomization, or simple local application, and therefore characterized by its particular adaptability to the field of preventive medicine — individual prophylaxis,

AND THE REQUIREMENTS OF GENERAL

DENTAL ✣ PRACTICE

LISTERINE IS A

Perfect Tooth and Mouth Wash,

NON-SECRET AND PROFESSIONAL,

And therefore has received the Highest Recognition as the Best General Antiseptic for a

DENTIST'S PRESCRIPTION.

Dentists interested in LISTERINE will please send us their address, and receive by return mail, post-paid, our new and complete pamphlet of 36 quarto pages, embodying

A TABULATED EXHIBIT of the Action of LISTERINE upon Inert Laboratory Compounds;

FULL AND EXHAUSTIVE REPORTS and Clinical Observations from all sources, both Medical and Dental, comfirming the utility of LISTERINE as a general Antiseptic for both Internal and External use; and particularly

MICROSCOPIC OBSERVATIONS, showing the comparative value and availability of various Antiseptics in the treatment of Diseases of the Oral Cavity, by W. D. Miller, A, B, Ph. D., D. D. S., Prof. of Operative and Clinical Dentistry, University of Berlin, from whose deductions LISTERINE appears to be the most acceptable prophylactic for the care and preservation of the teeth.

LAMBERT PHARMACAL COMPANY,

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DR. ROBERT S. IVY,

Mechanical * Dentist

1527 Arch Street,

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Professor J. E. Garretson, (for oral surgical appliances,) 1537 Chestnut St., Phila.

Dr. M. H. Cryer, 1423 Chestnut St., Phila., and others.

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"NEW DEPARTURE."

Educate Your Patients ! — A SENSITIVE POINT will do this, if read by your patrons, thereby saving you valuable time and great annoyance. It is presented after thirty years' successful dental practice, to introduce a subject too much neglected by our profession. It answers questions, makes suggestions, and gives advice to our patients on matters relating to the teeth. Send 10 cts. for the book—32 pages—and terms; 1,000 copies, neatly printed in your own name, free. *It will pay you to investigate this subject.* CHAS. HOUGHTON, Dentist, Batavia, N. Y.

WANTED!

A Young, Pushing Dentist in each town to act as Agent for the Imperial Alloy.

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COMPOUND OXYGEN

NOT A DRUG

1529 Arch Street, Philad'a, Pa.

A WELL-TRIED TREATMENT

For CONSUMPTION, ASTHMA, BRONCHITIS, DYSPEPSIA, CATARRH, HAY FEVER, HEADACHE, DEBILITY, RHEUMATISM, NEURALGIA and all Chronic and Nervous Disorders.

"COMPOUND OXYGEN" being taken into the system, the Brain, Spinal Marrow, and the Nerve-Ganglia—"Nervous Centres"—are nourished and made more active. Thus the Fountainhead of all activity, both mental and physical, is restored to a state of integrity, and the nervous system, the organs, and the muscles all act more kindly and efficiently.

"The Compound Oxygen Treatment" Drs. Starkey & Palen, No. 1529 Arch Street, Philadelphia, have been using for the last seventeen years is a scientific adjustment of the elements of Oxygen and Nitrogen magnetized, and the compound is so condensed and made portable that it is sent all over the world.

Drs. STARKEY & PALEN have the liberty to refer to the following-named well-known persons who have tried their Treatment: HON. WILLIAM D. KELLEY, Member of Congress, Philadelphia. REV. VICTOR L. CONRAD, Editor Lutheran Observer, Philadelphia. REV. CHARLES W. CUSHING, D. D., Rochester, N. Y. HON. WILLIAM PENN NIXON, Editor Inter-Ocean, Chicago, Ill. REV. A. W. MOORE, Editor The Centenary, Lancaster, S. C. W. H. WORTHINGTON, Editor New South, Birmingham, Ala. JUDGE H. P. VROOMAN, Wenemo, Kan. JUDGE R. S. VOORHEES, New York City. DR. E. C. KNIGHT, Philadelphia. MR. FRANK SIDDALL, Merchant, Philadelphia. HON. W. W. SCHUYLER, Easton, Pa., & thousands of others in every part of the United States.

"COMPOUND OXYGEN—its Mode of Action and Results," is the title of a new brochure of two hundred pages, published by Drs. Starkey & Palen, which gives to all inquirers full information as to this remarkable curative agent and a record of several hundred surprising cures in a wide range of chronic cases—many of them after being abandoned to die by other physicians. Also "COMPOUND OXYGEN—its Origin and Development," an interesting book of one hundred pages. Both or either will be mailed free to any address on application. Read the brochure!

DRS. STARKEY & PALEN,

1527 & 1529 Arch Street, Philadelphia, Pa.

HIGHEST AWARDS OF MEDALS AND DIPLOMAS OVER ALL AMERICAN AND FOREIGN COMPETITORS,

AT MORE THAN THIRTY

INTERNATIONAL, STATE AND LOCAL EXPOSITIONS.

SEABURY & JOHNSON,

Beg to call attention to the articles manufactured by them especially adapted for dental use.

OUR DENTAL LINT

Is made with great care, by perfected machinery, of which process WE ARE THE SOLE OWNERS AND OPERATORS IN THIS COUNTRY, and our product is guaranteed to be fluffier and lighter than any other make.

DENTAL ABSORBENT COTTONS.

Borated, Salicylated, Styptic and all other Medications. Perfect quality highly absorbent, superior to all competitive brands.

RUBBER DAMS, LIGHT and HEAVY

Order of dealers or directly from us.

We would also direct your attention to HYDRONAPHTHOL, the new antiseptic and disinfectant. It is odorless, non-poisonous, non-corrosive and tasteless. Is freely soluble in alcohol, ether, benzol, glycerine and fixed oils; twelve times as efficient as carbolic acid and three times as potent as salicylic acid. It is anæsthetic and soothing in its local effects, hence is especially recommended for treating sensitive dental cavities, abscesses, etc., etc. HYDRONAPHTHOL can be had incorporated in our Absorbent Cotton bandages, Jute, or any desired Surgical Dressing that can be rendered antiseptic.

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Proprietors of the SEABURY PHARMACAL LABORATORIES,

Manufacturers of India-Rubber Pharmacopœial and Surgical Plasters, Antiseptic Dressings and Absorbents, Bandages, Oiled Silk and Muslin, and Surgical Dressings of all Descriptions.

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CLAUDIUS ASH & SONS,

LONDON, ENGLAND.

We have established an office for the sale of our

MINERAL TEETH

Dental Rubbers, Forceps, Etc.,

AT

No. 30 East 14th Street,

NEW YORK CITY,

And have in stock a full assortment of

FLAT TEETH for Metal Plate, and Crown and Bridge Work.
VULCANITE TEETH.
TUBE TEETH for Metal Plate and Pivoting.
Pinless, Dovetail and Open Crown for Vulcanite.

We desire to draw attention to the following: Our Improved Pink, New Pink, Whalebone, Flexible Base, Dark Elastic, Orange, Dark Brown and Improved Black Rubbers.

Phosphate and Rock Cement.
Sullivan's and Stewart's Copper Amalgam.
Ladmore Brunton Clamp, Key and Matrices.
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Jacob's Gutta Percha Stopping.
Steuts' Modelling Composition, Amalgams, Forceps, Pivoting and Filling Instruments, Impression Trays, Barbed Nerve Extractors, Corundum, etc., etc.

Catalogues mailed on application.

Our MINERAL TEETH

Possess the following desirable qualities.

1. NATURAL FORMS—

   In great variety and of various sizes and lengths.

2. COLOURS—

   Ranging from very light to very dark shades, and closely resembling the various colours of the human teeth.

3. TEXTURE—

   Non-porous, so that they can be *ground* and *polished* to suit particular cases, therefore being well adapted for Bridge work.

4. STRENGTH—

   Possessing unusual strength on account of their fine and close texture.

5. SOLDERING—

   Bearing in an extraordinary manner the sudden transitions of temperature, so that they can be *soldered without cracking*. Our representative received corroborative evidence of this fact from many of the most prominent dentists in the United States.

CAUTION—

Some unprincipled dealers in the United States are selling imitations of our pinless teeth as our make. Dentists can easily detect the imitation, from the very rough finish and inferior coloring of these teeth.

Our DENTAL RUBBERS

Are much esteemed for their *purity, strength and solidity.*

Professor Attfield, F. C. S., who has put our Dental Rubbers to severe tests in order to settle the question of such a possibility, thus concludes his exhaustive report upon them: "I am of opinion that the vulcanite teeth-plates made from your Rubbers are practically unaffected by saliva or by any substance which ever gains access to the mouth; and, in short, that the pink and red vulcanite gums and palates are absolutely harmless."

CLAUDIUS ASH & SONS.

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CODMAN & SHURTLEFF'S IMPROVED INHALER.

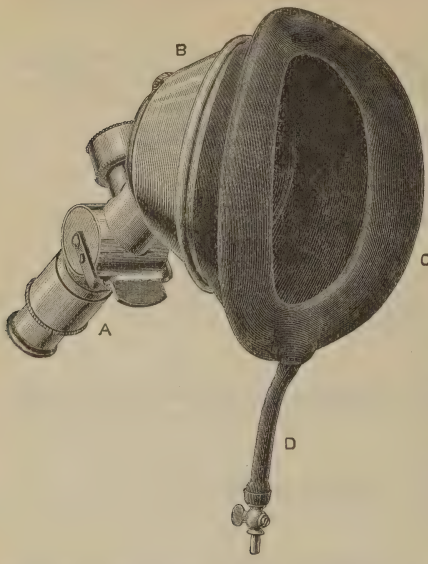


Fig. 116. This is the latest form of Inhaler made by us, and by many it is deemed the best. The inflated rubber hood *C* can be pressed close to the face, and yet is so yielding as to cause no unpleasant feeling. The metal shield *B* preserves the shape of the rubber hood. By means of the tube *D* the hood may be more or less inflated, as the dentist may find best adapted to special cases. The faucet *A* is the same as in all our Inhalers, and those having either of them can attach the parts *B* and *C* to the faucet they have, and thus make the complete instrument as shown in the cut.

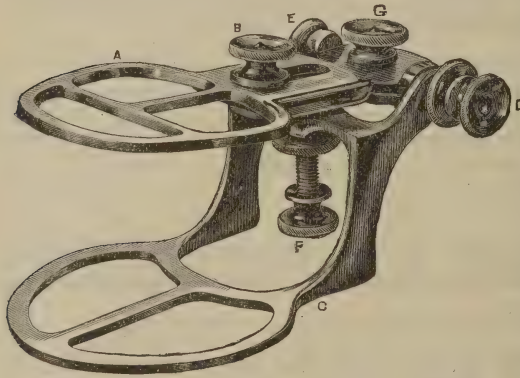
Price, Complete, . . $12.00.
Parts C and B, . . . 6.00.

In the manufacture and improvement of Inhalers for the Administration of Anæsthetics, we may rightfully claim to have taken the lead, and many competitors have paid us the highest possible compliment, that of imitating our instruments.

Having made these instruments a specialty, our customers may be sure that in every point of stock, workmanship and finish, they will be kept up to the highest standard.

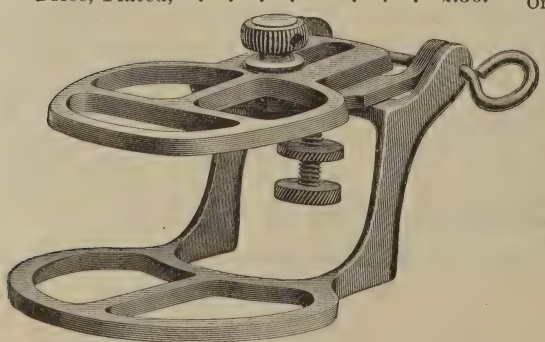
For full description and illustrations of our various styles of Inhalers, see our Catalogue and Special circulars.

CODMAN & SHURTLEFF'S NEW ARTICULATORS.



Price, Plain, ... $2.00.
Price, Plated, ... 2.50.

This is the latest, and we believe, all things considered, the best in the market. The upper jaw, *A*, slides backward and forward in grooves, so that by loosening the screw, *B*, this motion can be obtained without danger of lateral displacement. There is a second plate upon which the jaw, *A*, moves laterally, and is controlled by the screw, *G*, so that either of these important motions can be obtained entirely independent of the other. The screw, *F*, which adjusts the space between the jaws, *A* and *C*, is provided with a set-nut, which prevents it from unscrewing. The screws, *D* and *E*, which form the hinge, are cone pointed, and furnished with set-nuts, so that the wear can be taken up, and the movement always kept accurate. On plate *A* there is a series of graduating marks by which the dentist can see just how much change he has made in the articulation.



—o—

This Articulator is strong and well made, and in many respects superior to the cheap ones now sold. It is plated but not polished.

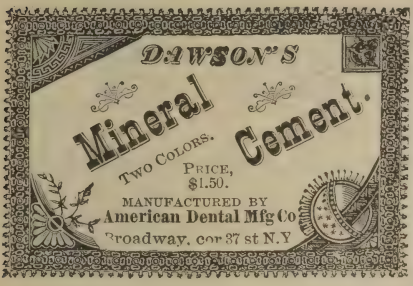
Price, . . 90 cents.

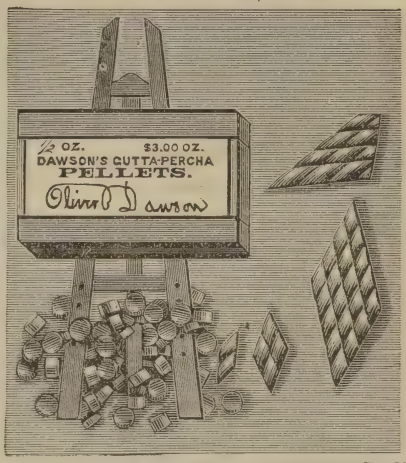
10-7-an-1

Dawson's Cement

QUALITY — TRADE MARK — AMERICAN DENTAL MFG. CO. — NEW YORK — RELIABILITY

DAWSON'S IMPROVED Gutta-Percha Filling.





THIS CEMENT HAS NO EQUAL FOR ATTACHING CROWNS AND FILLING CARIOUS TEETH.

We are constantly receiving WORDS AND LETTERS OF PRAISE from the Profession, commending the* Superiority *of these Filling Materials.

Fine Instruments and Filling Materials

OUR SPECIALTIES.

AMERICAN DENTAL MANUF'G CO.,

Broadway, cor. 37th Street, New York.

REASONS WHY PHYSICIANS SHOULD SUBSCRIBE

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Because: It is the *LEADING JOURNAL* of America and contains more reading matter than any other journal of its class.

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Because: Its "Original Articles" are the results of scientific observation and research, and are of infinite practical value to the general practitioner.

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Because: The Society Proceedings, of which each number contains one or more, are reports of the practical experience of prominent physicians who thus give to the profession the results of certian modes of treatment in given cases.

Because: The Editorial Columns are controlled only by the desire to promote the welfare, honor, and advancement of the science of medicine, as viewed from a standpoint looking to the best interests of the profession.

Because: Nothing is admitted to its columns that has not some bearing on medicine, or is not possessed of some practical value.

Because: It is published solely in the interests of medicine, and for the upholding of the elevated position occupied by the profession in America.

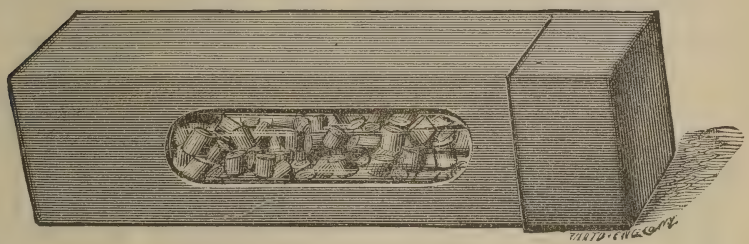
A department entitled "SOUTHERN NOTES" has been opened in the Journal, and will contain matters of interest to physicians living in the Southern States, as well as to those in the North and West.

The largely increased, and still increasing, list of subscribers to the Journal testifies, as does its list of contributors, to the high standard that it has always striven to maintain; and a glance at its advertising pages will prove its standing with the better class of advertisers, who always patronize the best medium for reaching the medical profession.

Subscription price, $5.00 per Annum. Volumes begin in January and July.

12-7-¼-1-x

EXTRA PLIABLE DECIMAL GOLD ROLLS.



(This Engraving represents a Phial of size 1 of the above designated Gold, inclosed in a Box.)

Gold Foil and Gold Rolls, per 1-10 ounce,	$3.00.	Per ounce,	$28.00
Extra Pliable Decimal Gold Rolls, per 1-10 ounce,	3.50.	Per ½ ounce,	17.00
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Ideal Cement, per package, with Pigments,			1.00
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Tin Foil (our make), very tough, per book,			.50

Try some of our "Ideal" Cement Filling and "Ideal" Alloy.

Appended are testimonials for our preparations of Gold from well-known gentlemen:

I have used the Rolled Gold of Edward Rowan & Co., and like it very much. I prefer high numbers—30, 60 and 120—for facility of adaptation to walls of cavities, capacity to bear high annealing and making solid work, I know no superior make.

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271 N. Eutaw Street. BALTIMORE, Md., June 5th, 1883.

GENTLEMEN—I have used nearly all of the last ounce of your "Extra Cohesive" Decimal Gold Foil No. 4, and it affords me pleasure to inform you that it has *proved* to be a *first-class article* in every respect. It is *cohesive* and *tough* in the *highest degree*, yet possessing *less harshness* than is usually found in cohesive foils. I cheerfully thus refer to it, and so long as you continue to make such foil, I want nothing better. Very respectfully,

JAS. H. HARRIS, M. D., D. D. S.

No. 100 Boylston Street. BOSTON, MASS., June 30, 1882.

Sirs—I have used your Rolled Gold for several years. When I wish to use *cohesive* gold, I prefer your No. 30 Rolled to any gold with which I am familiar. It is very tough, soft and cohesive. In short, pleasant and easy to work, and makes a compact, even and finished filling. Yours truly,

L. D. SHEPARD,
Late Professor of Operative Dentistry, Harvard University.

S. H. GUILFORD, A.M., D.D.S., (*Professor of Operative and Prosthetic Dentistry, Phila. Dental College,*) has permitted us to state that he uses and recommends our "Gold Rolls."

DR. H. J. MCKELLOPS, of St. Louis, writes us, under date September 16, 1884, "You may use my name in connection with your Gold with pleasure."

H. C. REGISTER, M. D., D. D. S., of Philadelphia, writes us, "You are permitted to use my name in recommending your Gold, as second to none in the world!"

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WM. CARR, M. D., 35 West 46th Street, New York, permits us to state that he endorses our Golds. He uses Nos. 3 and 4 soft; No. 60 Rolled; and Gold Rolls.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.

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EDWARD ROWAN & CO.

No. 1048 Third Avenue, S. W. Corner 62d Street, New York.

REFERENCES FURNISHED ON REQUEST.

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COHESIVE, SOFT No

WOLRAB'S PURE CHEMICALLY

GOLD FOIL

C. A. TIMME & CO.

IMPORTERS of DENTISTS SPECIALTIES

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190 HUDSON ST. HOBOKEN N. J.

CGH OF HOHT HNAHHOHH

Foil, $4.00 per ⅛ oz., $15.00 per ½ oz., $30.00 per 1 oz.

On orders of two ounces and more at a time a reduction of 50 cents per ounce will be given.

This gold is made in reference to the HERBST method of filling teeth with the engine. It has also proven a very desirable article for the *mallet* and *hand-pressure*.

We claim it to be superior to any other make for its peculiar *softness*. It easily adapts itself to the walls of the cavity, and when properly manipulated it makes a *solid* and *cohesive filling*. If it is to be used cohesively, a slight *warming over* the flame will have the desired result.

Very good reports have been received from prominent practitioners.

Timme's Imported German Phosphate Cement, per box, $1.00.

CUT OF LABEL FOR CYLINDER BOXES.

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GERMAN GOLD.

CHEMICALLY PURE

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MADE EXPRESSLY of filling TEETH

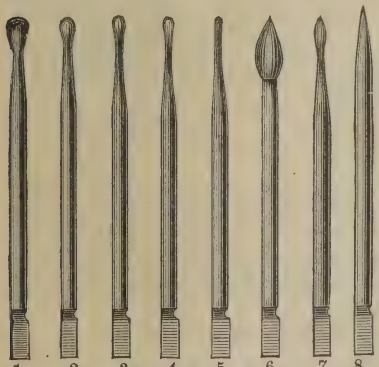
C. A. TIMME & Co. IMPORTERS OF DENTISTS SPECIALTIES

HUDSON St. HOBOKEN N.J.

SOLE AGENTS FOR THE U.S.

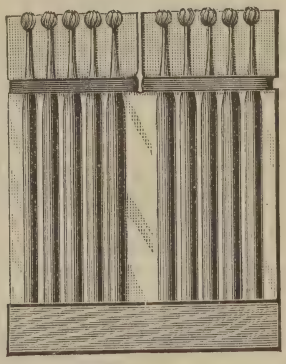
Cylinders, $4.50 per ⅛ oz., $17.00 per ½ oz., $34.00 per 1 oz.

Instruments for the Herbst Method



Made of Agate, per set, - - - $10.00
The same made of Steel, as shown in the cut, per set, - - - - 4.00

Imported Burs, Stone Cut.



Unequaled in temper, arranged on wooden cards, per card of ten, - - - $ 3.00
In boxes of ten cards, - - - 25.00

3-5-AN-2.

HARDMAN'S WHITE ALLOY

Takes the place of gold for filling front, or any teeth.

PRICE, $3.00 PER OZ.

Test for Color—Place a button of Amalgam, that has one surface polished, into a solution of 40 to 60 grs. of sulphuret of Pottassa in 1 oz. of water. Let remain 24 to 48 hours.

Test for Leakage—Fill a small glass test tube with it, just as you would a cavity in a tooth, and drop it into a bottle containing an alcoholic solution of red aniline.

This Alloy Stands These, and Any Other Tests Deemed Requisite to Perfection.

HARDMAN'S SUPERIOR AMALGAM

Surpasses all others for strength and density of texture. Use it for Crown Work, in Molars, &c.

PRICE REDUCED TO $4.00 PER OZ.

Large discounts on both of these in quantities.

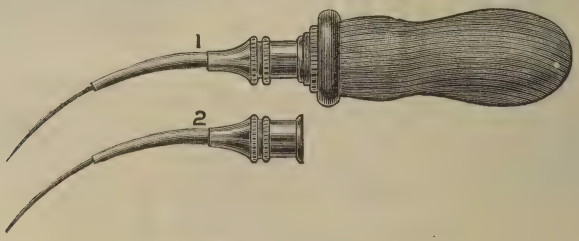
MADE AND FOR SALE BY

J. HARDMAN, MUSCATINE, IOWA.

If your depot does not keep them send to the proprietor for them.

8-4-AN-¼

DUNN'S MEDICINAL SYRINGE.



CUT ACTUAL SIZE.

Easily kept in order—ready and convenient for use.

It can be used with the utmost delicacy in the most sensitive parts.

Its light weight and ease of manipulating insures against the common expense and annoyance of breaking needles.

The mechanism is such as to give it the same force power as the Hypodermic.

Alveolar Abscess can be reached through a long sinus or fistulous track, syringed out, and medicaments injected with certainty and ease.

CHICAGO, Ill., April 7th, 1887.

J. Austin Dunn, D. D. S.:

DEAR SIR—The little Syringe which you left with me admirably meets a long felt want. I consider it the neatest instrument yet given to the profession for injecting remedies in Alveolar Abscess and pus pockets of Pyorrhœa Alveolaris.

Every operator should have several of them to avoid the necessity of using different preparations in the same instruments. Very truly yours, W. W. ALLPORT.

PRICE LIST.

No. 1, Syringe and Steel Needle	**$1.50**
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Or the two Needles and Syringe in one order	**2.00**
No. 1, Syringe with Platina and Gold Needle	**3.00**
No. 2, Extra Needle, small	**2.25**
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The pure Platina Needle is easily bent and soon leaks, and it is thought best to discontinue their manufacture.

PATENT PENDING.

ON RECEIPT OF PRICE A SYRINGE WILL BE SENT BY RETURN MAIL.

J. AUSTIN DUNN, D. D. S.,

70 Dearborn Street, CHICAGO, ILL.

6-7-00-½.

E. KEARSING'S

COHESIVE AND SOFT

GOLD FOIL,

Used by many of the prominent dentists in this country and abroad.

——ALSO EXTRA FINE——

TIN FOIL AND AMALGAM.

MR. E. KEARSING, *Dear Sir:*—After having used your gold foil for five years, I can say that it gives me better satisfaction than any other that I have used. For restorations and all work where I greatly depend upon cohesive qualities it never fails.

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113 W. 47th St., New York City.
September 8, 1884.

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MR. E. KEARSING, *Dear Sir:*—After having used your gold, both soft and cohesive, for nearly five years, I find it has given me entire satisfaction in all cases.

Yours truly, J. BOND LITTIG, D. D. S.,
113 W. 47th St., New York City
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Dear Sir:—After using your gold foil almost uninterruptedly for the last six years, I have no hesitation in stating that it stands without a rival for performing what are known as contour operations. It answers equally well for small fillings unannealed when properly manipulated. Very truly, H. C. LONGNECKER.

FLUSHING, L. I., Sept. 11, 1884.

E. KEARSING, ESQ., *Dear Sir:*—In reply to your inquiry about my opinion of the merits of your Gold Foil, I can say frankly, after having had over thirty years' acquaintance with it, that it works and wears beautifully. No gold foil ever had a better endorsement than that given your gold foil by the late Dr. Marshall H. Webb, whose elegant operations live to do honor to him and reward you. Your cohesive foil, No. 4, folded into 32 or 48, is daily giving me great satisfaction, being uniformly impacted from beginning to end of the filling with the Electric Plugger. Yours very truly, E. PARMLY BROWN.

101 HOYT STREET,

P. O. Box 182. BROOKLYN, N. Y.

7-4-AN-½

"THE OLD RELIABLE."

LAWRENCE'S AMALGAM.

RES NON VERBA
DR. LAWRENCE
TRADE MARK

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the Trade should be addressed accordingly.

Price, $3.00 per Ounce. For sale at all respectable Dental Depots.

Manufactured only by

AMBROSE LAWRENCE, M. D., 476 Columbus Avenue, Boston, Mass.

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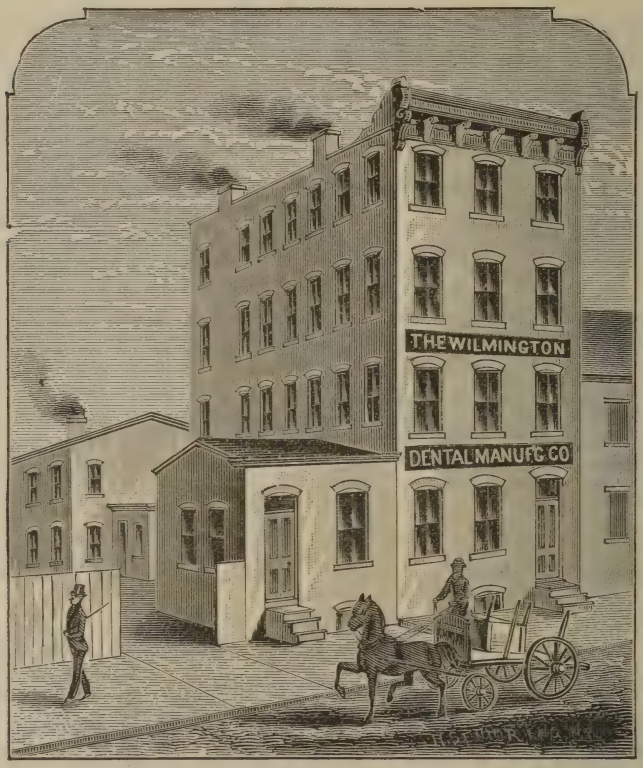
The Wilmington Dental Manufacturing Co.

MANUFACTURERS OF

ARTIFICIAL TEETH,



Nos. 1010 and 1012 KING STREET,

WILMINGTON, DELAWARE.

Having been justly recognized as manufacturing a very SUPERIOR TOOTH at a very moderate PRICE, they now avail themselves of this medium by which they hope to present their merits to the Dental Profession. They have now perfected their designs as to the character of their MODELS, and have fully succeeded in being able to present to the Dentist an opportunity to select a SHADE of enamel which will harmonize and correlate with that of the natural tooth.

☞ *For sale by Dental Dealers everywhere. Send for price list.*

PURE COPPER AMALGAM.

PREPARED BY

GEO. H. WEAGANT, L. D. S.

CORNWALL, ONT.

This Amalgam is not presented to the profession under an assumed or fancy name. It is called Copper Amalgam because it is composed simply of Pure Copper and Mercury. Its superiority is due to the extreme care exercised in its preparation. For filling teeth it possesses many qualities superior to those found in other materials used for this purpose.

It has decided antiseptic properties not found in any other filling material.

It becomes harder than any Amalgam made from alloys.

It is highly recommended for rapidly decaying Wisdom Teeth and for all teeth of a soft, chalky nature.

It is the best filling material for Deciduous Molars.

It is especially adapted for those shallow buccal cavities in lower molars, usually so difficult to manage.

It will not bulge out of the cavity, nor change its shape after it has hardened.

It is absolutely an unshrinking Amalgam.

There is no waste in using this Amalgam, as the smallest scraps can be worked over and used.

It has but one objectionable feature, *it turns black*, but if properly inserted in the cavity, it will not discolor the tooth.

In preparing this Amalgam, great pains are taken to cleanse it from all impurities, making it a perfectly clean Amalgam. The Copper is obtained in a finely divided state by precipitation from a solution of Cupri Sulphas.

12-7-00-½ **Price, $3.00 per Ounce.**

In cases where patients are constantly coughing and suffering from a dry and tickling throat, the result of a cold, so that operations of any kind are difficult to perform, and especially rendering it impossible to take an impression, two or three of these troches administered beforehand will so modify these symptoms that any operation can be performed with impunity, and no time will be lost by having to wait until the patient recovers from the cold. All dentists should keep these in the office for that purpose. A sample box will be sent to any dentist on receipt of stamp.

STICTA PULM OR LUNGWORT

is the standard *Homœopathic Specific* for all Throat troubles or Lung affections, It has been prescribed with the most emphatic success by our leading physicians, and is here presented, combined with the *best established allopathic medicines*, in a thoroughly soluble, pleasant and efficacious Tablet. These Tablets are guaranteed to contain no Ammonia, Cubebs, or other disagreeable drugs. Prepared only by the

STICTA PULM CO., P. O. Box 1686, N. Y.

Ask you Druggist for Sticta Pulm Throat Tablets, and take no others.

12-7-00-½ **PRICE, 25 CENTS.**

ESTABLISHED IN 1845.

THOMAS DENNIS,

MANUFACTURER OF

GOLD LEAF

Dentists' Gold Foil, Gold Plate, Solder, Amalgam, &c.,

160 PEARL STREET, BUFFALO, N. Y.

Gold and Silver Refined. **Photographers' Waste Reduced.**

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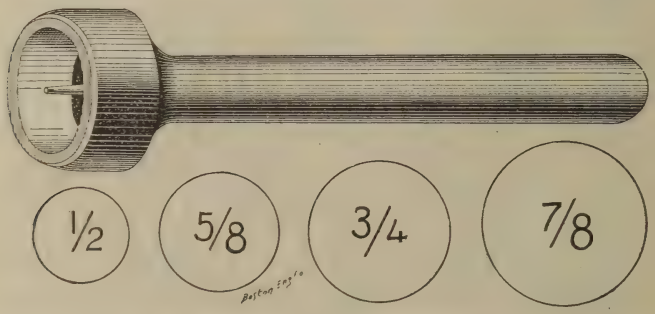

The above cut represents the Stevens Disk Cutter as now made, and as it was first introduced to the profession six years ago.

IT IS THE ORIGINAL PRACTICAL DISK CUTTER.

The circles represent the four regular sizes. A few odd minutes will suffice to make a great number and variety of disks at a trifling cost.

DIRECTIONS.—Select your sand, emery or flour of emery paper in such grades as please you. Give all but the very fine grades one coat of shellac varnish on the sand side. When dry, tack the sheets on some flat surface, sand side down, to prevent curling. Give the backs three or more coats of shellac and let them dry thoroughly. Cut on the end of a block, or what is better, on a piece of rubber and cloth belting ¼-inch thick fastened to the block. Place the sand side down and use a wooden mallet to strike the cutter.

These cutters are placed at the very low price of $1.00 each. Special sizes will be furnished for $1.50 each. They will be sent by express C. O. D., or by mail post-paid, on receipt of price.

S. G. STEVENS, Evans House, BOSTON, MASS.

THE DENTAL REVIEW

Devoted to the Advancement of Dental Science.

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Published Monthly, $2.50 a Year.

Each number contains: I.—Original Contributions. II.—Proceedings of Societies. III.—Editorials. IV.—Domestic Correspondence. V.—Foreign Correspondence. VI.—Reviews and Abstracts. VII.—Questions and Answers. VIII.—News Memoranda.

IN NUMBER ONE was begun a series of papers on THE PERIOSTEUM AND THE PERIDENTAL MEMBRANE by G. V. Black, M. D., D. D. S., superbly illustrated with full page plates from original drawings by the author.

The series will be continued throughout the year.

Subscribers for 1887 will receive the numbers for November and December, 1886, containing parts I and II of this series gratis.

Sample copies mailed free upon application.

W. T. KEENER, *Publisher,*
96 Washington St., CHICAGO.

4-7-×-1½.

THE IMPERIAL ALLOY.

This Alloy is composed of chemically pure Gold, Silver, Platinum and Tin. It is made by an entirely new process, and combined in such proportions as to secure the best results. It possesses that white color, so much to be desired, does not tarnish, is quick setting, and for fineness of grain and edge-strength, combined with ease of manipulation and freedom from shrinkage, makes it the best Alloy in the market. By a new discovery we can make it set in any desired time, from two to eight minutes, without changing the formula. This will be found very useful in building down broken teeth and setting crowns.

We will allow 25 cents per ounce in trade for all Amalgam Scraps. Send stamp for sample sufficient to make several fillings.

Price, $4 per Ounce, or 3 Ounces for $10.

RUSSELL & GLOVER,
P. O. BOX 81,
BROOKLYN, N. Y.

J. W. RUSSELL, M. D. S.
CHAS. G. GLOVER, Chemist and Metallurgist.

C. F. FAHRBACH, 214 California St., SAN FRANCISCO, CAL.,
General Agent for the Pacific Slope.

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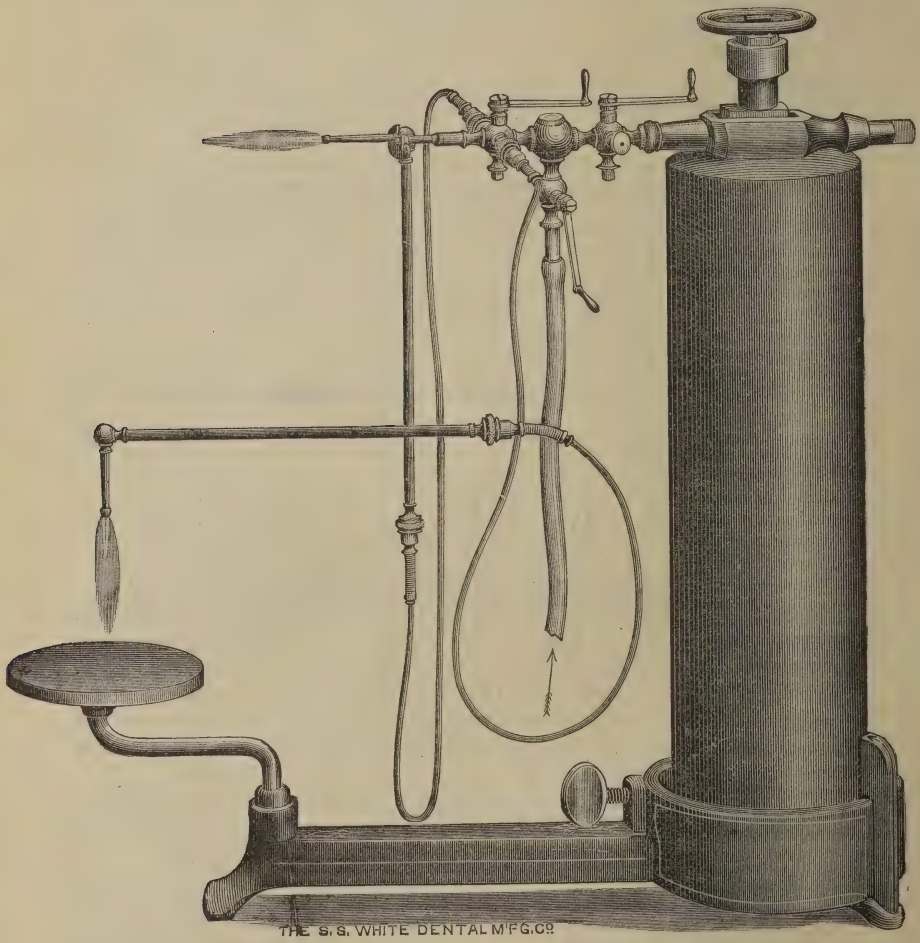
THE KNAPP BLOW-PIPE.

Invented by Dr. J. ROLLO KNAPP.

Patent applied for in England, France, Germany, and the United States.

This new Oxyhydrogen Blow-pipe consists of an iron stand in which is secured by a thumb-screw a 100-gallon cylinder of nitrous-oxide gas. By means of a yoke and set-screw the valve of the cylinder is connected with the tubes and valves of the blow-pipe in such manner that the proportions of the



mixture of nitrous-oxide and illuminating gases are under perfect regulation and control.

There are two pipe-nozzles, which may be used at the same time, or one at a time, according as a large or small flame may be desired. One pipe-nozzle is shown as hung upon its hook, and the other as if directed upon work held on the pivoted bracket-table. The largest piece of plate-work, the smallest piece of

crown-work, or the most delicate soldering with pure gold or its alloys can with equal facility and without exertion or over-heating on the part of the operator be accomplished in the least possible time by the use of this surprisingly effective, compact, and cleanly device. Dr. Knapp has been accustomed to do all his soldering of crown and bridge-work without leaving the operating-room. All the blow-pipe parts are nickel-plated, and the stand is tastefully japanned. The illustration is about one-third actual size. A detailed description with directions for use accompanies each apparatus sold.

Dr. H. W. Howe, Lawrence, Kansas, writes under date May 9, 1887: "It is perfect. I can solder anything from a full case of gold to a wire the size of a horse-hair. I fill caps and crowns for single teeth or bridge-work, as described by Dr. Knapp in the DENTAL COSMOS, perfectly satisfactorily to myself. In using both jets at one time on heavy cases of invested plate-work, the large flame for heating the case, the other to solder with, I am more than delighted with its perfect work.

"I can utilize my platinum scraps, by either mixing with gold, or melting the scrap platinum. I make solid bands for crown-work by simply jointing the edges nicely and touching with borax, add a little filings from the same piece and have no trouble in melting the joint into one solid piece of the same karat. As to this 'little giant,' I cannot express myself strongly enough to give you any idea of my appreciation of it."

Price, without Cylinder of Gas - - - - - - $16.50

SURFACE COHESION FORMS FOR ARTIFICIAL DENTURES

Invention of Dr. Joseph Spyer. Patented January 6, 1885; December 8, 1885.

FIG. 1.

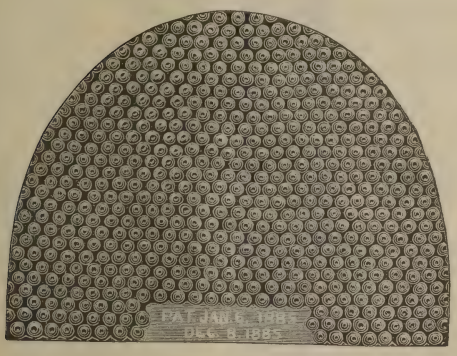
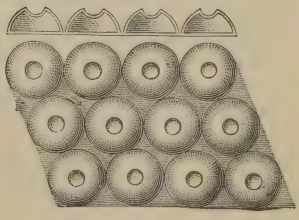


FIG. 2.



A thin metallic Form, the surface of which is covered with minute papilliform prominences—shown in Fig. 2 magnified four diameters—which by displacement of mucus at the points of gum contact effect surface cohesion as if the denture were glued to the gums, yet cause no irritation and leave no marked indentations. Adapted for either upper or lower plates. By the aid of this device strong cohesion can be had with a narrow plate, and thus the sense of taste be left unimpaired. Lower plates so made are very firm. Put up in packages containing one dozen Forms size of Fig. 1, which can be cut for either upper or lower plates. Full directions accompany each package.

Price - - - - per box containing one dozen Forms $1.00
Rubber Cement - - - per dozen $4.00; per bottle .35

These Forms are also made of Gold with a thin lining of Silver, similar to our Vulcan Gold Lining, and for like use. Thickness of No. 120 foil.

Price - - - - - - - - - - - each $2.50

The Abbott Automatic Plugger.

PATENT APPLIED FOR.

This Plugger has both direct and back-action movements combined in one instrument, and is designed to avoid most of the defects found in other Automatic Pluggers.

The spindle, carrying the pivotal latch and tripping mechanism, together with the hammer, passes centrally entirely through the casing, and is socketed at both ends for bits, making one end direct or push-blow, while the other is a pull or back blow.

The force of the blow is regulated by the milled nose C, which is held in place by the holder D, which projects through the nose-piece, fitting into a circumferential groove. The two end pieces (or noses) unscrew from the tubular center casing, allowing the spindle carrying the mechanism to be removed.

Some of the improvements are :

1st. Less friction; no grating sound or rattling of springs.

2d. Less pressure required by the operator for the same force obtained.

3d. The mechanism is free from the case, it being mounted upon and guided by the spindle, thereby saving all friction on the case.

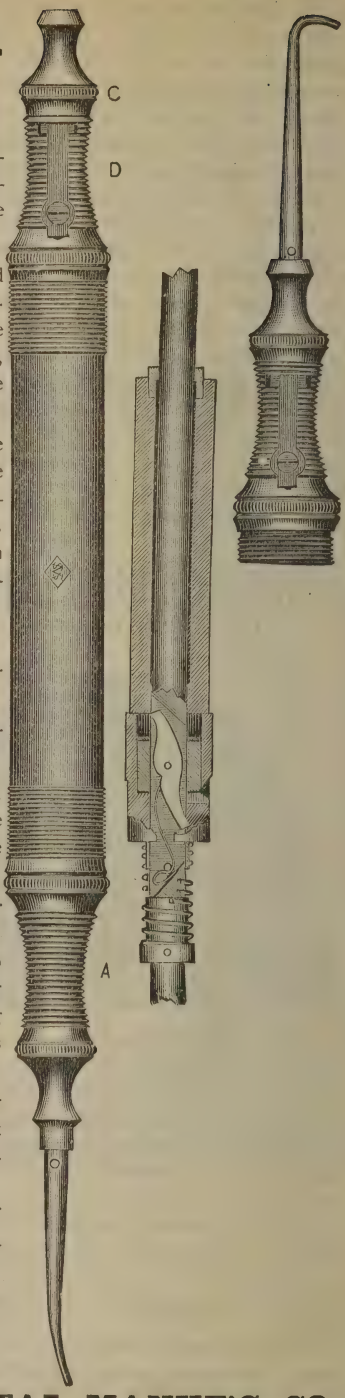
4th. A heavier hammer, with lighter springs, which has after long and careful ex periments by many operators been found to be more efficient, and the hammer having hardened steel bushings as bearings, leaving the center free for the spindle to pass, reduces the friction to the minimum.

5th. The back-action movement being combined with the direct, in one instrument operated by the same mechanism, is therefore very much simplified.

All the parts liable to wear are made of hardened steel, and the instrument throughout is made in the very best manner.

Both the Cone-socket and Snow & Lewis Bits will fit the sockets.

Price, Nickel-plated, ... $9.00



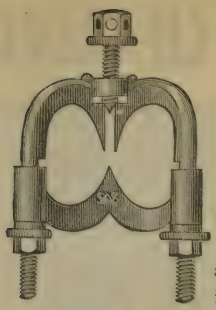
THE S. S. WHITE DENTAL MANUF'G CO.

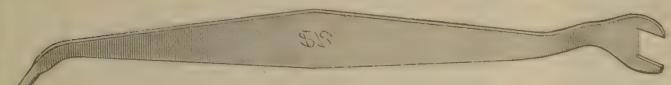
PHILADELPHIA, NEW YORK, BOSTON, CHICAGO, BROOKLYN.

UNIVERSAL SEPARATOR.

INVENTED BY DR. H. A. PARR.

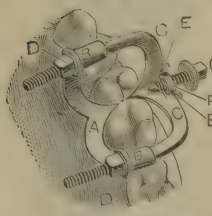
Patented September 8, 1874; October 5, 1886.





Dr. Parr claims that this Separator is universal in application and adjustment between teeth of all denominations in either jaw; it is therefore manufactured in a single form of the exact size of the cut. The mode of its application to teeth of all kinds is made obvious by the illustration Fig. 1. The Nuts D D can be moved with the thumb and finger, or the wrench, as required to force the wedging points between the teeth, and as the nuts move independently of each other, the arms can be more or less drawn to adapt the pressure to the varying curves of the teeth. Greater separating force will be obtained by turning the screw G.

FIG. 1.



With this device teeth may be regulated, or be held by wedges in the positions to which the Separator has forced them. It should prove of no small advantage that a single Separator will thus render practical service in every part of the mouth where two teeth are to be forced and held apart for any dental operation. For further description see report of First District Dental Society of New York in DENTAL COSMOS for August, 1886, page 509.

PRICE.

Universal Separator with Wrench, . . . $7.50.

GUM-RETRACTOR.

Suggestion of DR. T. F. CHUPEIN.

This instrument is designed to hold back the gum, or the rubber-dam, while filling those very troublesome cavities which extend under the gum on the labial surfaces of the anterior teeth.

The Retractor is to be held in the left hand of the operator, or by the assistant, and is so nicely shaped that its hold on the tooth-neck is close, to exclude moisture, and secure against slipping.

Ebony handles.

Price, ... each 75 cents.

ABSORBENT COTTON.

We guarantee this Cotton to be absolutely pure, free from any reaction and from all foreign matter. We call special attention to its softness and its freedom from the harshness which characterizes other brands on the market.

PRICES.

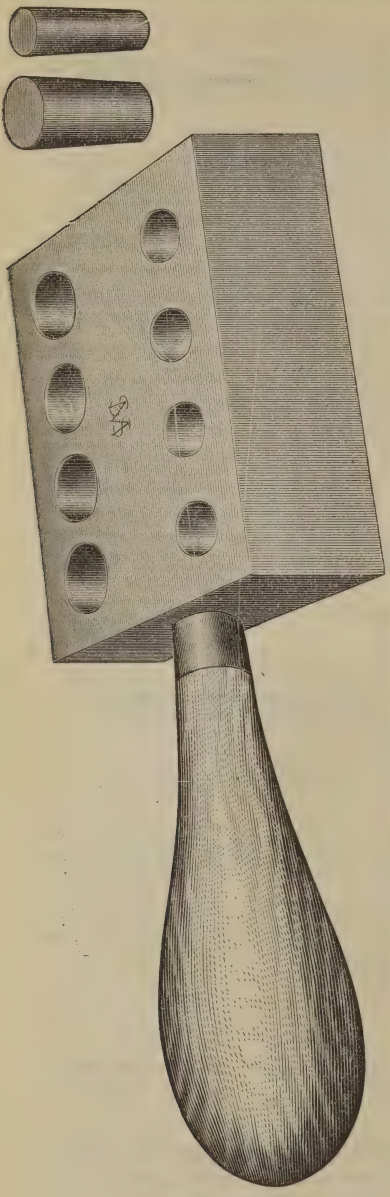
One-ounce box, ... 12 cents.

Two-ounce box, ... 20 cents.

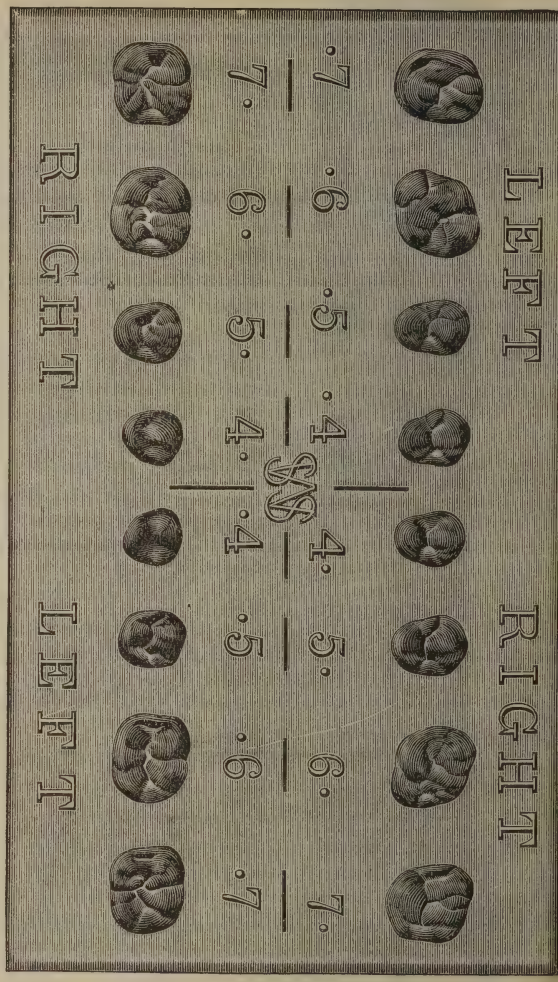
THE S. S. WHITE DENTAL MANUFACT'G CO.

PHILADELPHIA, NEW YORK, BOSTON, CHICAGO, BROOKLYN.

DIE-PLATE AND HUB-MOLD FOR MAKING CAP-CROWNS.



Hub-Mold.



Die-Plate.

These inventions were described in the DENTAL COSMOS for August, 1887, pages 482 to 485.

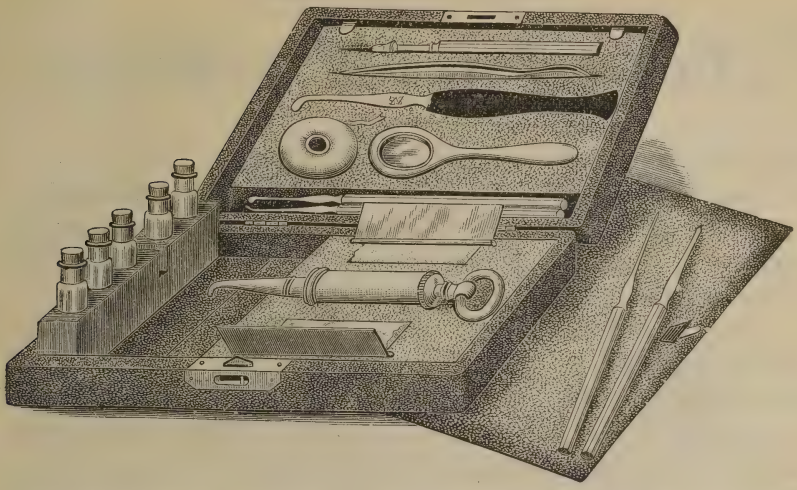
The Die-Plate is made of a special hard alloy and the Hub-Mold of cast-iron.

PRICES.

Die-Plate,	$5.00
Hub-Mold,	1.00

DENTIST'S VISITING CASE.

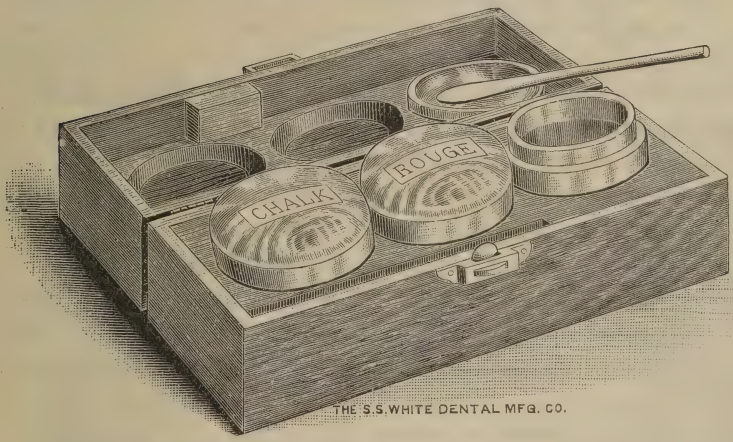
Suggested by Dr. E. C. Moore.



For use in case of emergency. It frequently occurs that dentists are called upon at night to treat teeth at a distance from the office. The Dentist's Visiting Case contains the necessary appliances and medicaments for relieving aching teeth, treating abscesses, etc. It is of convenient size for the pocket, and with it the necessary relief can be given until an appointment at the office can be made.

Price, ... $9.00.

OFFICE POLISHING-POWDER CASE.



A convenient device for keeping polishing powders for the office, combining also a ready means of preparing for use. A neat walnut box contains a tray holding three glass jars, the tops of which fit into recesses in the lid of the box. When it is desired to mix a small quantity of powder, the top of the jar, set reversed in one of the recesses in the lid, forms a convenient mixing-tray, which can be wiped out with a cloth or a piece of paper, as it has no corners to retain debris. It is suggested that glycerin is better than water for mixing polishing powders for use about the teeth, as it will prevent the powder from flying from the brush or other instrument with which it is applied.

Price, complete $1.00

THE S. S. WHITE DENTAL MANUF'G. CO.,

PHILADELPHIA, NEW YORK, BOSTON, CHICAGO, BROOKLYN.

To the Dental Profession.

GENTLEMEN:

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

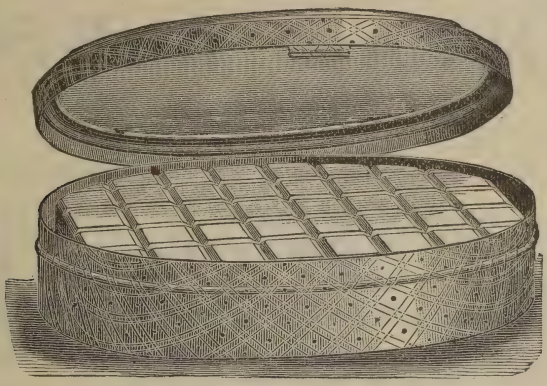
I. W. LYON, D.D.S.,

88 MAIDEN LANE, NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

DR. I. W. LYON'S TOOTH TABLETS



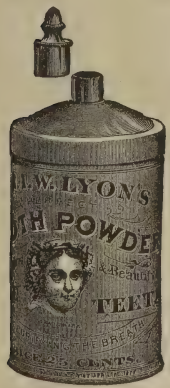
For Purity, Efficiency, Neatness and Convenience these Tablets have no equal as a Dentifrice. They are put up in Seamless Metallic Boxes, which are impervious to air and moisture, and may be carried on a journey without danger of breaking.

HIGHLY INDORSED BY EMINENT DENTISTS.

PRICE **50** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

DR. I. W. LYON'S

PERFECT TOOTH POWDER



ENAMELLED METAL BOX REDUCED IN SIZE.

This Powder is carefully prepared by an experienced dentist, familiarized by practice with the wants of the teeth. It is absolutely pure and free from acid, grit, or other hurtful substances, and is highly recommended by the most eminent men in the profession. It gives a *delightfully refreshing sensation* in the mouth, strengthening and healing the gums, and imparting a fragrance to the breath which is very agreeable.

Put up in an enamelled metal box with sprinkler top, free from the mishaps incident to glass or wood, and very convenient for use, especially in traveling.

ENAMELLED PAPER CARTON REDUCED IN SIZE.

PRICE **25** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

I. W. LYON, D.D.S., PROPRIETOR,

88 MAIDEN LANE, NEW YORK.

3-5-AN-2.

AKRON
DENTAL RUBBER

The materials of which this Rubber is composed
are prepared by new processes,
which insure

ABSOLUTE PURITY,

Resulting in a Product of Wonderful

DENSITY, FIRMNESS AND STRENGTH.

It is especially designed to meet the requirements of those who seek to produce the most perfect and artistic work.

It is exceedingly tough and light, and takes a beautiful polish.

Plates may be made very thin without danger of splitting or crumbling away about the edges.

It can be used with the best results for making partial lower dentures, an advantage which no other rubber possesses.

It has the unqualified approbation and endorsement of the profession everywhere, and never fails to give satisfaction.

It will cost you nothing to try it.

Send for samples and prices.

AKRON RUBBER WORKS,

AKRON, OHIO.

Sold by all Dental Depots.

11-5-AN-1

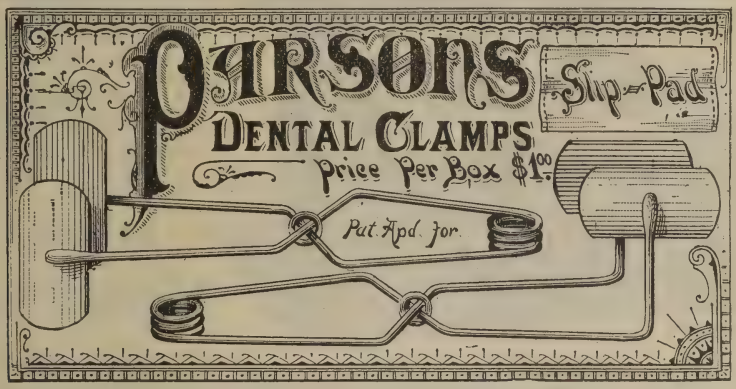
WANTED.

A First Class experienced Operator for the Continent. Must be a D. D. S.

Letters to be addressed to

"B," DENTAL DEPOT,

12-7-00-00 *Koelliker, Zurich, Switzerland.*



A FACT.

A short time ago I purchased one of your Ideal Laboratory Brushes and I was astonished with the cleanliness of the plate after I had used it. It removes every particle of plaster, not only in the flat plates but in those which are very deep. You will always find one in my laboratory as long as I make rubber plates.

H. H. BUCK,

Oct. 19, 1887. Brockport, N. Y.

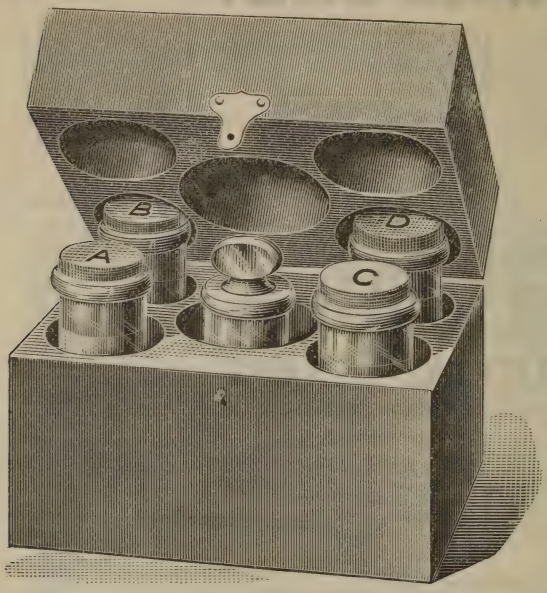
MANUFACTURED BY

FLORENCE MANUFACTURING CO., FLORENCE, MASS.

The PROPHYLACTIC TOOTH BRUSH and the FLORENCE DENTAL PLATE BRUSH are "Ideal" in *construction* and in *use*.

4-7-00-1

SMITH'S ADAMANTINE PHOSPHATE CEMENT.



INSOLUBLE.

TWO COLORS.

Price, - - *$1.00.*

Also in Cedar Cases, as shown in cut, containing four colors of Powder and one bottle of Liquid, glass-stoppered.

A, White; B, Brown; C, Yellow; D, Bluish.

PRICE, $2.00.

SMITH'S

Oxychloride of Zinc.

PRICES—Plain Form, one-ounce, - - - - - each $1.00
Cedar Cases, as shown in cut, containing four colors of Powder and one bottle of Liquid, glass-stoppered, - - - - " $2.00
A, White; B, Brown; C, Yellow; D, Bluish.

10-6-00-½ DR. J. H. SMITH, New Haven, Conn.

NOTICE!!

Having received a lot of Amalgam, Gutta Percha and Oxy-phosphate of Zinc stoppings, for filling teeth, I am prepared to dispose of them for cash at a big discount.

Have also vulcanizers, instruments, etc., for sale cheap. *Enclose postage stamp* for reply to inquiries.

Dr. B. M. WILKERSON,

312 N. Charles St., Baltimore, Md.

GLUTEN Flour and Special Diabetic Food, are invaluable waste-repairing Flours, for Dyspepsia, Diabetes, Debility, and Children's Food. No Bran mainly free from Starch. Six lbs. free to physicians and clergymen who will pay express charges. For all family uses nothing equals our "Health Flour." Try it. Samples free. Send for circulars to FARWELL & RHINES, Watertown, N. Y.

PURE PRODUCTS FOR DENTAL PRACTICE!

Among the preparations we manufacture which are of use to the Dental Profession, we have pleasure in calling attention to the following, which we believe, on account of purity and convenience, will commend themselves to our dental friends.

COCAINE.

Cocaine Alkaloid, pure in crystals; Citrate solution, 4 per cent.; Hydrobromate, pure in crystals and in solution, 4 per cent.; Muriate, pure in crystals and solutions, 2 and 4 per cent.; Oleate, 5 per cent., and Salicylate solution, 4 per cent. Also *Complete Cocaine Case*, embracing every essential for topical and hypodermic use. Send for pamphlet.

Pure MENTHOL, in crystals and pencils; pure CHLOROFORM; BROMIDE OF ETHYL; NITRITE OF AMYL PEARLS, invaluable in case of sudden syncope and a restorative of enfeebled circulation.

PARKE, DAVIS & CO.,

MANUFACTURING CHEMISTS,

DETROIT, MICH. New York Branch: 60 Maiden Lane.

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ALFRED J. NICKOLDS,

Refiner and Manufacturer of

Dentists' Chemically Pure 1000 Fine

GOLD FOILS, GOLD PELLETS,

TIN FOIL, ETC.,

238 McDonough Street,

BROOKLYN, N. Y.

Special attention is invited to *Nickolds' Improved Soft Gold Foil* and *prepared Pellets;* pronounced the best article of Gold Foil extant.

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UNIVERSITY OF PENNSYLVANIA

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JOHN MARSHALL, M.D., NAT.SC.D., Demonstrstor of *Practical Chemistry.*
JOHN B. DEAVER, M.D., Demonstrator of *Anatomy.*

SESSIONS.

The *Winter Session*, 1888–89, begins October 1st, 1888, and ends on May 1st, 1889.
The *Spring Session*, 1888, begins on May 2d and ends the last of June. The work of this session is entirely practical; no lectures are delivered.

EXAMINATIONS.

At the close of the first year, examinations in Chemistry and Materia Medica are held, which, if the student fail to pass, a second examination is afforded him at the beginning of the next winter session.

The final examination is in Anatomy, Physiology, Operative Dentistry, Mechanical Dentistry and Metallurgy, and Dental Pathology and Therapeutics.

Students who have attended one full term in another dental school recognized by the Faculty, will be admitted to the graduating class without examination, upon presentation of the required certificate.

Students holding a medical diploma will be admitted to the Senior Class without examination, but will be required to spend a year in the study of practical Dentistry in the Operative and Mechanical Departments, including the regular winter's course of lectures.

Students who have attended but one course in a medical college will be required to take two winter courses in this Department.

An examination is required for entrance to the Junior year. The requirements of this examination will be a good English education.

Students who have certificates properly attested from colleges, or schools of reputable character, will be accepted without examination; all others must pass an examination in the elements of a good English education.

EXPENSES.—WINTER TERM.

Matriculation fee, $5; Tuition fee, first year, $100; second year, $100. Fee for Dissection, $10; Graduation fee, $30. For each additional year, $100.

Further information may be obtained from

JAMES TRUMAN, *Secretary,*
3249 Chestnut Street, Philadelphia, Pa.

1-8-an-1

UNIVERSITY OF MARYLAND.

DENTAL DEPARTMENT.

N. E. COR. LOMBARD AND GREENE STS., BALTIMORE, MD.

HON. SEVERN TEACKLE WALLACE, LL.D., PROVOST.

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JAMES H. HARRIS, M. D., D.D.S., Professor of Operative and Clinical Dentistry.
FRANCIS T. MILES, M. D., Professor of Physiology.
L. McLANE TIFFANY, M. D., Clinical Professor of Oral Surgery.
J. EDWIN MICHAEL, M. D., Professor of Anatomy.
R. DORSEY COALE, Ph. D., Professor of Chemistry and Metallurgy.
I. EDMONDSON ATKINSON, M. D., Professor of Materia Medica and Therapeutics.
JOHN. C. UHLER, M. D., D.D.S., Demonstrator of Mechanical Dentistry.
CHARLES L. STEEL, M. D., D.D S., Demonstrator of Operative Dentistry.
HERBERT HARLAN, M. D., Demonstrator of Anatomy.

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Each year since its organization has added to the reputation and prosperity of the University Dental School, until now its graduates in almost every part of the civilized world are meeting with the success that ability will ever command. Visiting dentists from all parts of this country have expressed themselves as being astonished and gratified at the ability shown by the students when operating upon patients in the Infirmary. Forming one of the departments of *one of the oldest Universities* in this country, its diploma is everywhere recognized and honored.

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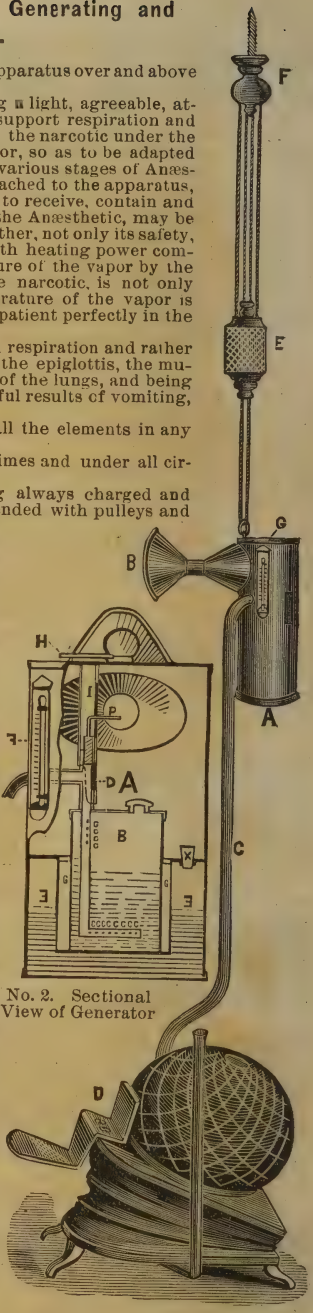

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